ENGINEERING NEWS-RECORD

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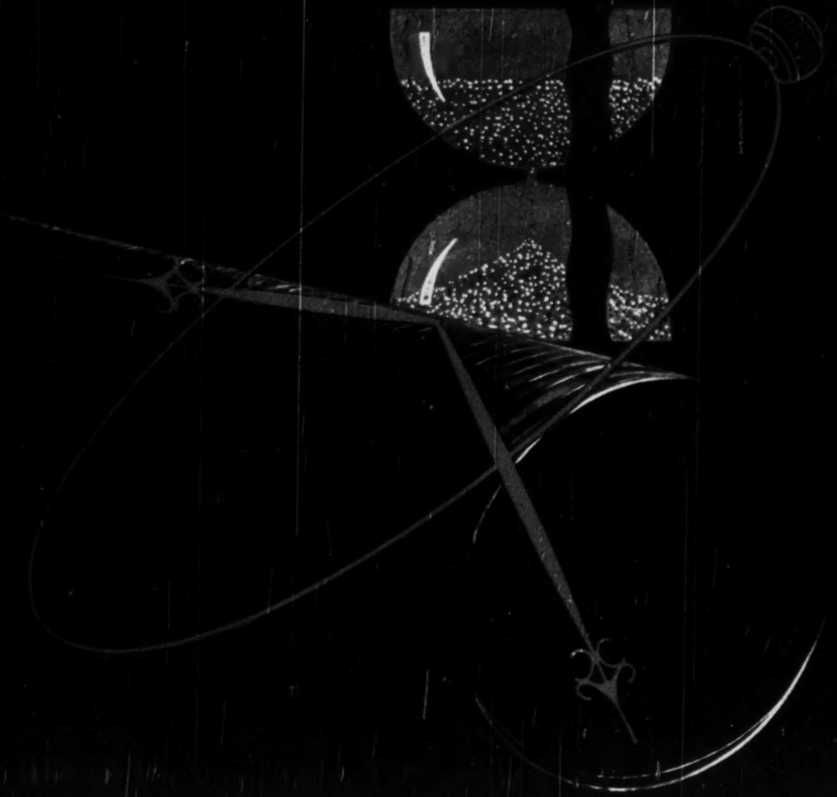

The bottom is "Tops" in this drainage structure

It used to be that drainage structures often had to be replaced even though the upper three-fourths was still in good condition. Engineers and officials wanted to do something about this waste. But what?

Then Armco engineers found the answer in "balanced design." They developed Armco Paved-Invert Pipe. This new pipe had a thick bituminous pavement in the invert for greater protection against erosion. Now the bottom lasts as long as the top—service life is up, maintenance down—and everybody's happy.

Creating better products to meet specific needs has been the objective at Armco for more than 40 years. A few examples are Hel-Cor Perforated Pipe, Steelox Buildings, Flex-Beam Guardrail, Pipe-Arch, and sturdy, durable Multi-Plate Bridges.

Today you can bring your drainage and construction problems to Armco with full assurance you will receive all the benefits of long experience, extensive research facilities and a real interest in helping you solve your most difficult problems.

Armco has a complete range of engineered products and convenient, authoritative data to help you. If your problem is unusual why not talk it over with our engineers.

ARMCO

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MIDDLETOWN, OHIO • OFFICES AND PLANTS IN PRINCIPAL CITIES
SUBSIDIARY OF ARMCO STEEL CORPORATION
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Research keeps
1870
BFG
B.F.Goodrich
FIRST IN RUBBER

No clogged drills here
B. F. Goodrich hose has oil-resisting tube

THEY had to move more than 850,000 cubic yards of earth to build the big Bull Shoals Dam in Arkansas. To get the dynamite underground it took more than 42,000 feet of drilling.

Oil sprayed into ordinary air hose rots rubber, causing it to break loose from the tube, clogging up the drill. B. F. Goodrich research engineers worked out a new rubber compound for air hose. It has a high resistance to oil, will not break into loose, gummy particles that clog tools.

On almost any construction job there's plenty of rock, rough roads, cinders that wear down or tear hose covers. B. F. Goodrich air hose has a special tear-resisting cover. Scraping and dragging over rough surfaces won't tear it. Stands hot sun without cracking. Because of its oil-resisting cover, workers with oily hands or gloves can handle it, use it around oily machines.

On jobs where ordinary hose had to be replaced every few weeks to save tools, B. F. Goodrich hose lasted months, even years. This improvement in rubber was made in time to save money and trouble on big jobs like the one pictured here, where B. F. Goodrich air hose is used exclusively, thousands of feet of it.

This is B. F. Goodrich air hose Type 50, recommended for shop tools, tie tamping, portable compressor service, air hoists, ore mining and quarry service. There are many other types of B. F. Goodrich air hose, all being improved and tested through B. F. Goodrich research. If your business uses air pressure, you can benefit from this research, and it costs you no more. First step is to call your local BFG distributor. *The B. F. Goodrich Company, Industrial and General Products Division, Akron, Ohio.*

Air Hose
BY
B.F. Goodrich

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BETTER LIVING *through* BETTER ROADS

Citizens of the U.S.A. have paid road builders $35 Billion for highways. It is about the best investment the U.S.A. ever made.

Almost every citizen will agree to this when informed that it generates an annual income of more than $30 Billion in oil, rubber, motor cars, trucks, roadside services, etc.

In 1949 the U.S.A. bought $1.7 Billion worth of highways. That marked the highest rate of investment in the history of road building.

It brings the highway system up to a point adequate for handling the traffic of 1932. Since 1930, the number of vehicles on the road has increased 26½ million to nearly 44 million.

Multiple Taxes Entitle Car Owners to Adequate Roads

The deficiency in highways is enormous. Estimates of this deficit range as follows: $11 Billion by U.S. Bureau of Public Roads; $20 Billion by Joint Economic Committee of Congress; $30 Billion by American Association of State Highway Officials and $60 Billion by the American Road Builders Association.

This confronts Road Builders with a challenge to become better Road Salesmen concentrating on the job of selling all citizens on insisting that legislators appropriate monies to wipe out the road deficit.

Point out to them that the visible and hidden taxes they pay on motor vehicles, gasoline, etc., entitles them to adequate all-weather roads. Also, considering what's at stake, they can be built relatively cheap by contract—the American way of giving the "undiverted" highway dollar highest possible purchasing power.

union Wire Rope CORPORATION
2228 Manchester Ave., Kansas City 3, Mo.

ENGINEERING NEWS-RECORD

VOLUME 144 MARCH 30, 1950 NO. 13

WALDO G. BOWMAN
Editor

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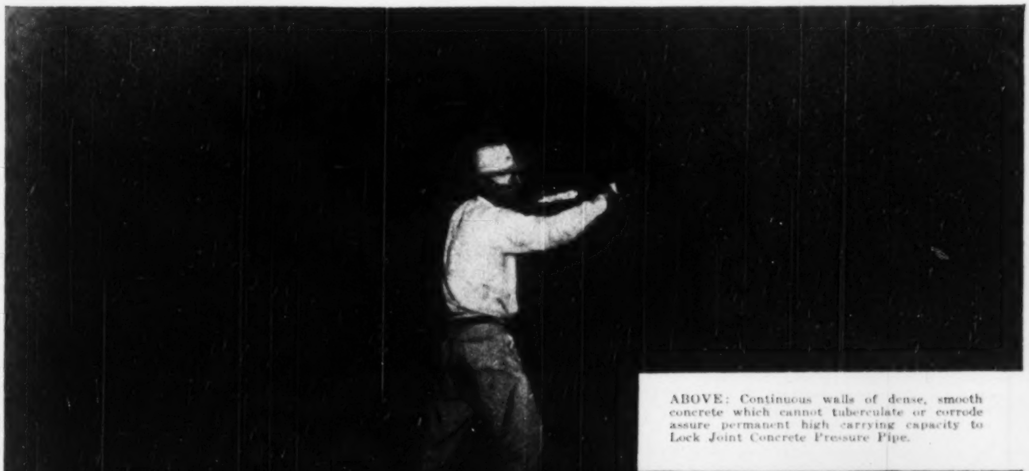
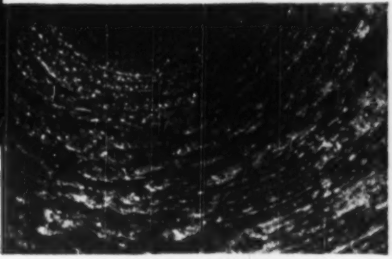
CONCRETE is the answer to your main problem



ABOVE: Continuous walls of dense, smooth concrete which cannot tuberculate or corrode assure permanent high carrying capacity to Lock Joint Concrete Pressure Pipe.



ABOVE: The tuberculated condition of this metallic pipe line reduces its carrying capacity by 50%.

Tuberculated mains—corroded mains—leaky mains—all cost municipalities, taxpayers and industry immense sums every year in added pumping costs, maintenance and repairs. Yet, by the use of Lock Joint Concrete Pressure Pipe, all of this unnecessary expense could be eliminated.

1. LOCK JOINT PRESSURE PIPE

does not tuberculate . . .

RESULT

- No excessive pumping costs
- No periodic cleaning costs
- No loss of income from inadequate delivery of water to the consumer

2. LOCK JOINT PRESSURE PIPE

does not pit or perforate from electrolysis or corrosion

RESULT

- No cost for major repairs
- No cost for periodic patchwork
- No loss of revenue while the line is shut down for emergency repairs.

Consider these facts when you plan your next water supply or transmission main and specify Lock Joint—the pressure pipe of perpetual economy.

Lock Joint Pipe Company for over forty years has specialized exclusively in the manufacture of reinforced concrete pipe for water supply and transmission mains as well as for sewers, culverts and subaqueous installations.

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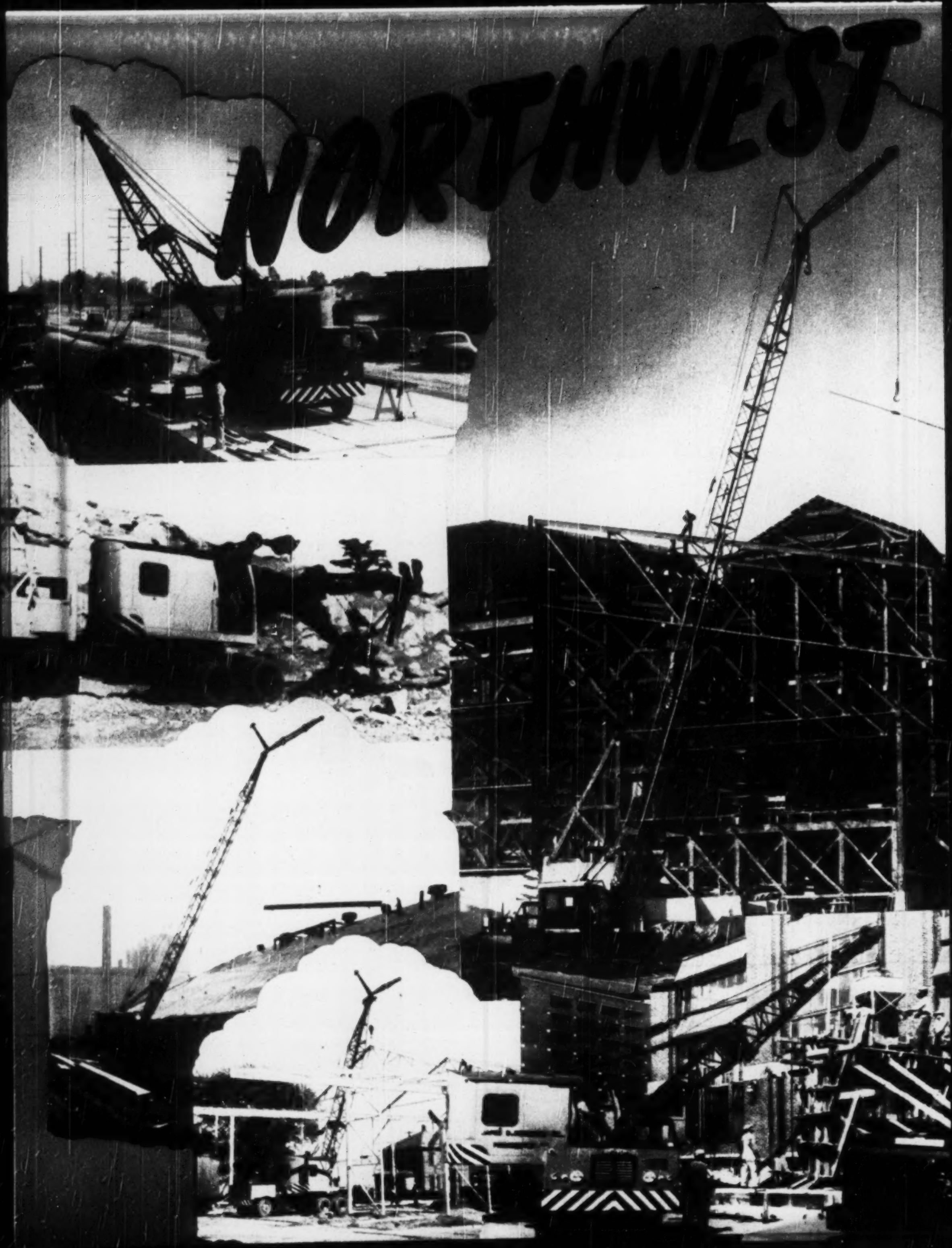
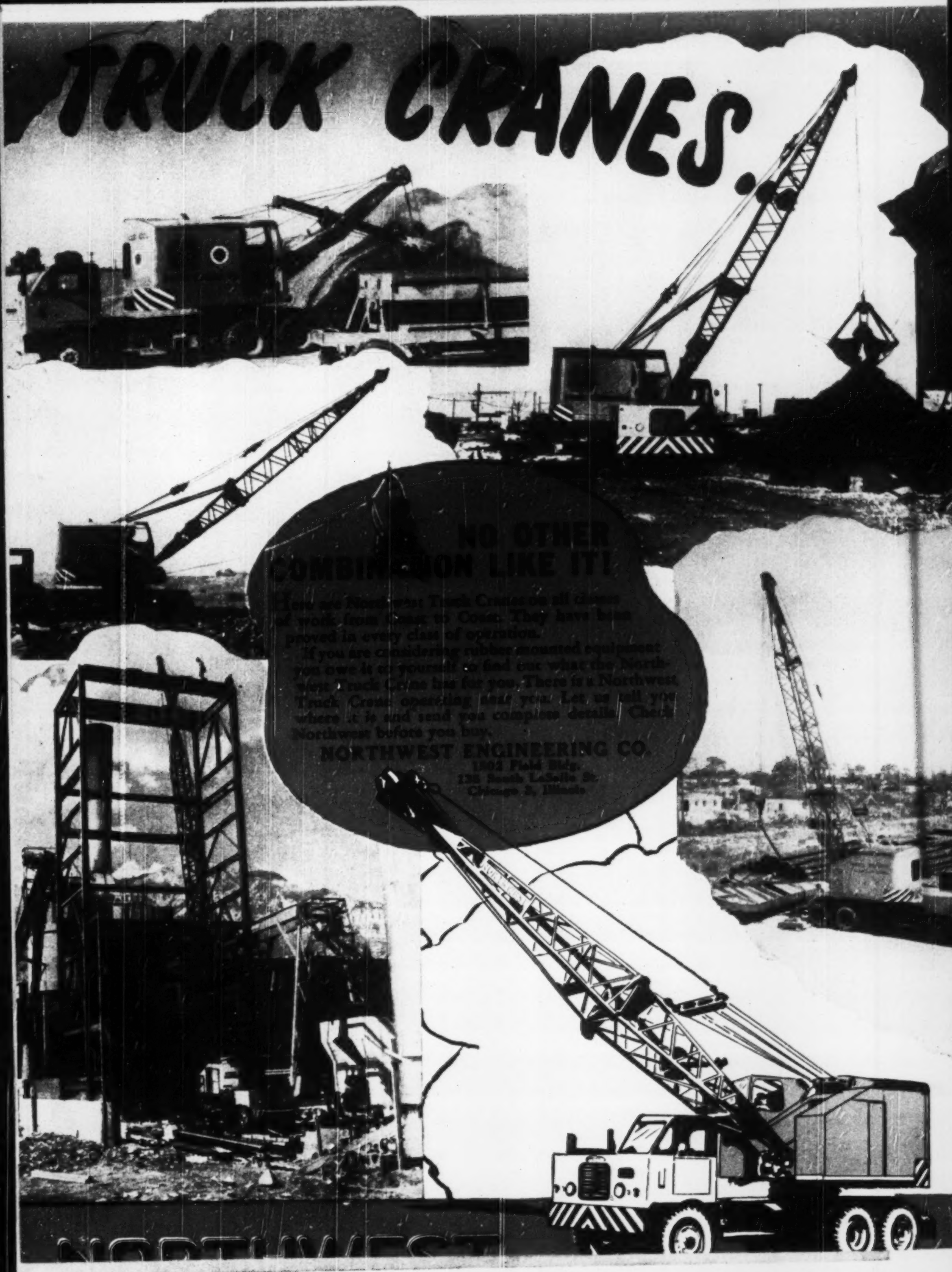
LOCK JOINT
Reinforced Concrete
PRESSURE PIPE


NORTHWEST



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Here are Northwest Truck Cranes on all classes of work from Coast to Coast. They have been proved in every class of operation.

If you are considering rubber mounted equipment you owe it to yourself to find out what the Northwest Truck Crane has for you. There is a Northwest Truck Crane operating near you. Let us tell you where it is and send you complete details. Check Northwest before you buy.

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TEXACO
REG. T. M.

TEXACO

Photo courtesy Joy Mfg. Co., Sullivan Division

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All are designed to give you greater operating efficiency . . . prolong compressor life . . . reduce your maintenance costs.

To be sure of getting the right lubricants for your compressors, let a Texaco Lubrication Engineer help you select them. Just call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write:

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FOR ALL CONTRACTORS' EQUIPMENT

CHAMPION

WORKIN'EST

Here are some of the exclusive features that give the TD-24 its matchless work capacity:

1. 180-h.p. International diesel engine with gasoline-conversion starting and unmatched "lugability".

2. Synchromesh transmission for easy shift-on-the-go operation; plus eight speeds forward and eight reverse.

3. Planet Power drive, smooth and rugged, for instant speed change up or down one gear without declutching.

4. Planet Power steering to provide power on both tracks in gradual turns and permit feathered or pivot turns.

5. Separate reverse lever for quick change of direction of travel in any of the eight transmission speeds.

6. High-speed track assemblies with new recoil mechanism that holds front idlers in position against full-load track pull.

The NEW TD-24

CRAWLER TRACTORS • WHEEL TRACTORS

DIESEL ENGINES • POWER UNITS

Standardize on Power that Pays

# of Crawlers

TRACTOR ON ANY JOB

● *"THE TD-24 is definitely outhauling every other tractor on the job. It will do so much work that we are sure our job costs will show a great saving!"* That's the report of the foreman on the 247,000-yd. University of Maryland stadium project. • *"I don't have to stop on any grade,"* the operator reports, *"and we have 25% or better on this job. Why, I just go up in 4th gear easy while the other tractors have to switch to low to make it."* And the TD-24 hauls a 17-yard scraper, heaped! • Yes, the TD-24 is the "workin'est tractor" on any job. Yet, its operator is the worker with the easiest day! See your International Industrial Power Distributor. Get a TD-24 demonstration. Discover how you, too, can save job time, cut costs, earn extra profits.

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James Melton and
"Harvest of Stars,"
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afternoons

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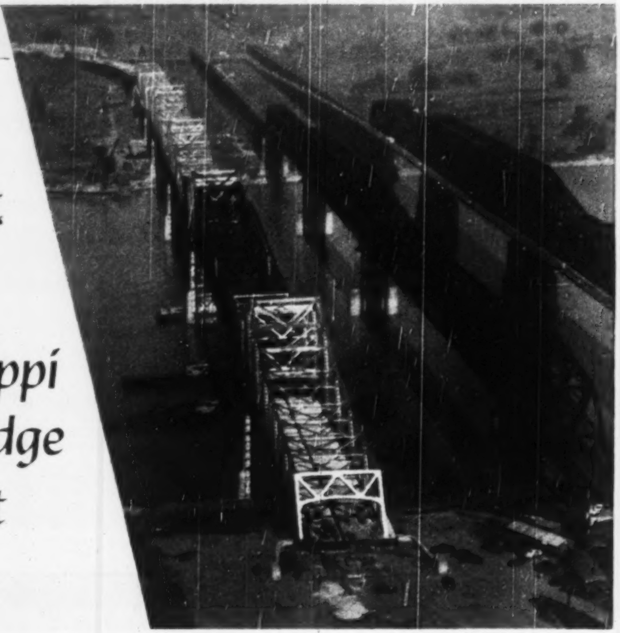
INDUSTRIAL POWER

Gulf Products and Fine Service

keep equipment rolling

on Mississippi River Bridge Project



The recently completed Memphis & Arkansas Bridge, shown above left in the process of construction, is over 5,200 feet long, carries a 4-lane roadway, and cost $13,566,000. The main bridge steel superstructure was erected by Harris Structural Steel Co., Inc., New York, N. Y., whose equipment delivered top performance with Gulf lubricants and fuels. This contractor had an outstanding safety record on this big job—not a single loss of life, and 69,000 man-hours of operation before the first lost-time injury.

ANOTHER big construction project where equipment made an outstanding record of dependable performance with the help of Gulf quality products and services.

Here are a few of the reasons why so many leading contractors prefer the products identified by the familiar orange disc: Gulf lubricants provide an extra margin of protection. Gulf fuels help to insure full power. Gulf supplies expert engineering counsel and prompt delivery service. Result: fewer delays, lower maintenance costs, bigger profits!

Let us discuss with you how our products and services can help you on your next job. They are available to you through more than 1200 warehouses. Write, wire, or phone today.

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Sales Offices - Warehouses
Located in principal cities and towns throughout
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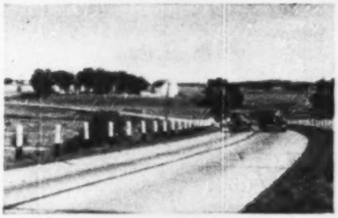
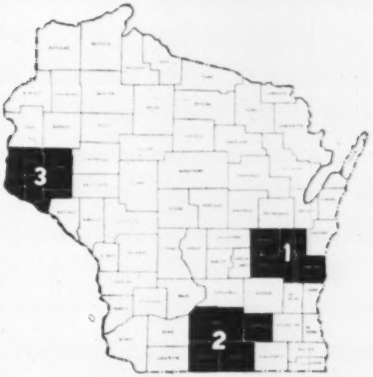

U.S. 53, Chippewa County

Maintenance costs drop when there's more CONCRETE PAVEMENT



IN WISCONSIN each county maintains the state trunk highway system within its borders. This work is supervised by the state, which reimburses the individual counties for the work done. As a result, comparable costs for total maintenance, including surface and roadway, are available.

Official figures for 1945-1948 show a definite relationship between the amount of concrete paving and the total maintenance cost per mile per year. The three groups of contiguous counties shown on the map above illustrate how maintenance cost goes down as the amount of concrete paving goes up.

1 This group consists of Winnebago, Calumet, Fond du Lac and Sheboygan Counties. In these counties from 70% to 90% of the state trunk highway system is paved with concrete. Average total maintenance cost for the 4-year period was $415 per mile per year.

2 Dane, Jefferson, Green and Rock Counties are in this group and 44% to 67% of their state trunk highway system is paved with concrete. The average total maintenance cost for the same 4-year period was $577 per mile per year.

3 In this group of four counties, St. Croix, Dunn, Pierce and Pepin, less than 25% of the state trunk highway system is paved with concrete. The average total maintenance cost for the 4-year period was $854 per mile per year.

The above graphic examples clearly demonstrate that maintenance costs go down when the amount of concrete paving goes up. In addition to low maintenance cost, concrete pavements last longer and usually cost less to build than other pavements of equal load-carrying capacity. Result: ***low-annual-cost*** service. Write today for free booklet, "*Road Surface Maintenance Costs from 28 States,*" distributed only in the United States and Canada.

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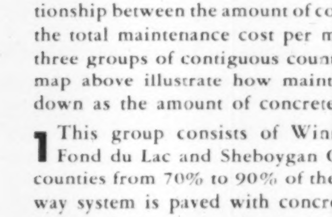
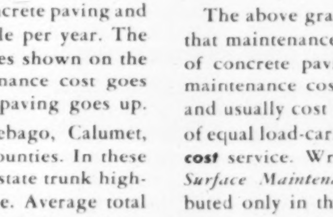
A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

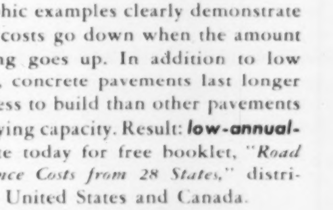
Wis. 55, Calumet County



U.S. 41, Washington County



U.S. 51, Columbia County



Hi-BOND
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Contractor reports that Hi-Bond from Ryerson stocks, used exclusively on this job, simplifies tying, yet gives firmer framework, because of gear-like contact between scientifically designed bars.

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Available for Quick Shipment from Ryerson

Now you can put the smoothly efficient combination of Ryerson reinforcing bar stocks and Ryerson reinforcing service to work for you. From the wide range of sizes on hand you can get quick shipment of most any reinforcing requirement.

Ryerson handles the complete job from setting plans to delivery with speed and accuracy. Bars are cut, bent and correctly tagged for easy placement. Deliveries are scheduled to the changing needs of the job.

In Chicago, Detroit, Cincinnati and Los Angeles, Ryerson stocks include the unique Hi-Bond bar, scientifically designed to give a greater bonding grip in concrete. Hi-Bonds test-proven grip means better, stronger construction and an increased resistance to the formation of tensile cracks.

You can save time by calling Ryerson for every other construction steel, too. Our stocks include structurals, plates, structural tubing, steel spirals, forms for concrete joist construction—in short, everything in steel. One call covers all your requirements. So for Hi-Bond reinforcing and every kind of steel, contact your nearby Ryerson plant.

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You are assured of material that conforms to the new A.S.T.M. specification A305-49 when you order reinforcing bars from stocks at your nearby Ryerson plant.

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THE CONSTRUCTION WEEK

WHAT'S WITH 608?—Congress is timid about cutting off FHA commitments for section 608 loans as of March 1—when the section officially died. Heavy pressure from grassroots groups of builders, bankers and brokers was behind the Senate's vote last week to add $400 million authorization for FHA insurance of these mortgages to take care of applications made during January but not processed before cutoff date. (Just how much $400 million means is easily demonstrated: In February, President Truman authorized $300 million for section 608 loans—and that sum was consumed in four days.) Theoretically conservative Republicans were more influenced by backhome pressure than the Democrats in the Senate action: Senator Wherry, minority floor leader, tried to amend the bill to let FHA accept 608 applications received up to Feb. 15—and picked up 28 votes for the amendment from his economy-minded colleagues. One thing out of the 608 provisions that's been worrying Congress was denied in New York last week. Rumors suggested that many a holder of 608 commitments (guaranteeing up to 95 percent of the mortgage) had no intention of building, was holding the paper as a trading unit by which he could make a quick profit without sticking a shovel into the ground. New York FHA headquarters disbelieved the rumor, pointed out that there has been no wholesale trading in commitments, that it would know details of most transactions involving transfer of such papers. The agency added it was convinced that where such transfers have been made, they have been legitimate, apparently, and involved legitimate builders. Also, observers pointed out, the prospects of a quick profit are better if a builder just goes ahead and builds.

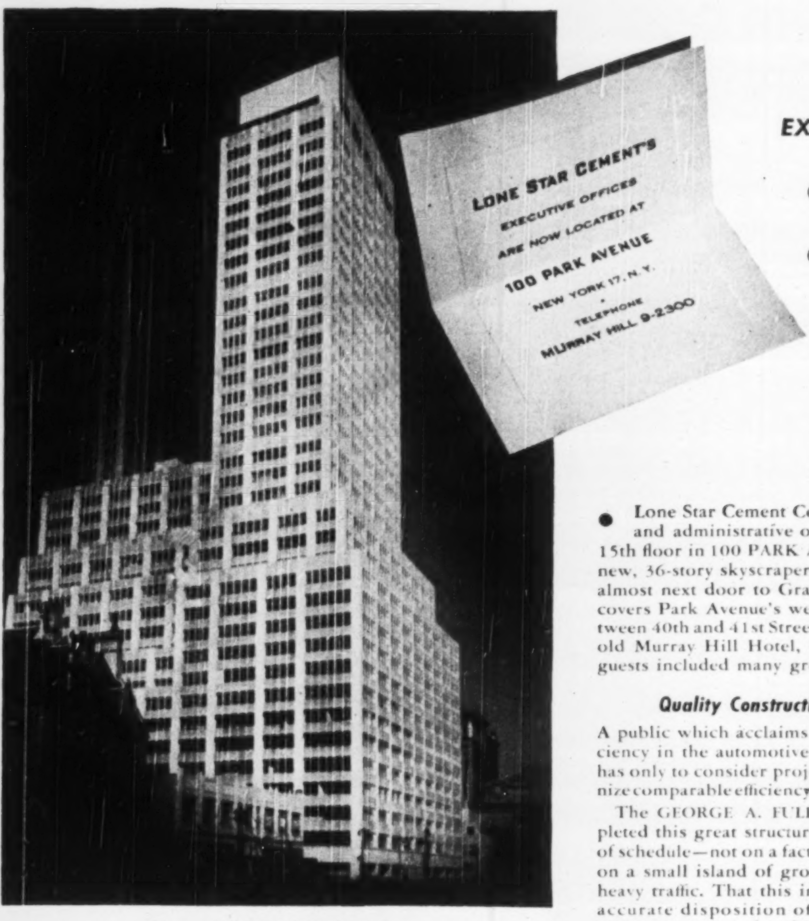
FANNIE MAE STRAPPED—A big surge of applications from mortgage lenders to the RFC's Federal National Mortgage Corp. (Fannie Mae) for commitments to buy VA-guaranteed paper has used up (in just 47 days) the $700 million of unobligated funds that remained in FNMA's kitty at the end of January. Closing of this government secondary market for mortgages would kill practically all sales of new houses to GI's. Congress can't afford to let that happen—so it is expected to OK more buying quickly. FNMA is a big prop under the housing boom, and Truman wants to expand housing credit, not shrink it.

NO MORE RAILS FOR L. A.?—Despite reports now current, there seems to be little prospect that additional rail communications (for freight) will be built around Los Angeles. Two railway companies now serve the area (Pacific Electric Railway Co. and Los Angeles Transit Lines) but neither gives any evidence of wanting to extend rail lines—both seem to be concentrating on bus and truck transport. Additionally, the grandiose parkway plans of the city and county would seem to preclude further rail expansions. Incidentally, Angelenos are waiting a final report from a five-man county rapid transit committee (made up of the presidents of five universities) appointed in 1949 to survey county needs.

LABOR TOUGHER—Washington figures businessmen should paste this in their hats as they prepare to sit down with labor men: Don't underestimate the impact of John L. Lewis' victory in the coal strike. Observers figure Lewis' 70-cent daily wage raise and his 10-cent-per-ton royalty raise will stiffen demands of other unions when they sit down at the bargaining table. Lewis' gains total about 17 cents per hour.

WHO'S TO BUILD DAMS?—There's an administrative decision coming up in Washington which will have much bearing on whether the federal government is to be practically the nation's sole builder of big power dams. It will arise when the Federal Power Commission rules on a finding by one of its trial examiners that Virginia Electric & Power Co. develop the Roanoke Rapids power site on the Roanoke River in Virginia and North Carolina. The ruling disallowed an Interior Department contention that, because Congress had approved an Army study of the river, private development on it was foreclosed. In an essentially similar case last year (ENR Nov. 24, 1949, p 17), an FPC examiner ruled against private development of the Kings River (California) and its tributaries, but was overruled by FPC, which licensed Pacific Gas & Electric. If FPC rules private development permissible in this case, it should remove much of the feeling by private utilities that there's no future for them in attempting to develop hydroelectric power on navigable streams which have been under federal scrutiny. That could lead to earlier development of such hydro sites as FPC might license privately, for power companies could be expected not to repeat their performance of the '20's and '30's. Then, they held numerous licenses inactive or surrendered them when the depression halted such major projects. With the knowledge that the federal government is in the dam-building and power-marketing business to stay, private power systems will be much more apt to exercise promptly whatever licenses they apply for and get. And there'll be much more point in seeking licenses than there has been.

LONE STAR'S NEW HOME



LONE STAR CEMENT'S
EXECUTIVE OFFICES
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EXECUTIVE OFFICES CONSOLIDATED ON 15th FLOOR OF NEW YORK'S NEW 36-STORY SKYSCRAPER

- Lone Star Cement Corporation's executive and administrative offices will occupy the 15th floor in 100 PARK AVENUE, New York's new, 36-story skyscraper. This great building, almost next door to Grand Central Terminal, covers Park Avenue's westerly block-front between 40th and 41st Street, on the site of famous old Murray Hill Hotel, built in 1884, whose guests included many great figures of the day.

Quality Construction Throughout

A public which acclaims mass-production efficiency in the automotive and other industries, has only to consider projects like this to recognize comparable efficiency in construction today.

The GEORGE A. FULLER COMPANY completed this great structure three months ahead of schedule—not on a factory assembly-line, but on a small island of ground space in a sea of heavy traffic. That this involved handling and accurate disposition of some eight-million pieces or units, in hundreds of different shapes and materials, time-scheduled for arrival and placing, gives some idea of the size, scope and efficiency of the operation.

The use of 121,112 bags of Lone Star Cement in all concrete work typifies the quality of the construction—building-dollar value at its soundest and best.

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Architects: **KAHN & JACOBS**
General Contractor: **GEORGE A. FULLER COMPANY**
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LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD

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CONSTRUCTION TRENDS

HOUSING GOES TO MARKET

Financing public housing will be a huge job for the nation's money markets. Under the Housing Act of 1949, about 500 local housing authorities are already planning projects. The federal government will subsidize rentals of these houses. But the cash for construction will come from private sale of authority bonds.

The dollar volume of such bond issues may reach $500 million in 1950. During the next 5 years, as much as $7 billion more may be issued to pay for the 810,000 public units authorized.

Despite the large amounts required, financing is expected to proceed smoothly. Two banking syndicates, headed by New York institutions, are being formed to underwrite housing bonds and distribute them on a nationwide basis. Meanwhile, temporary funds to get the projects started are being loaned by either the Public Housing Administration or banks.

Here's how the operation is expected to work:

1. Each local housing agency signs a contract for financial assistance with the federal Public Housing Administration. PHA has to approve the general plan.

2. Then PHA will loan money for the early stages of planning and construction. In many cases, however, local authorities are simply borrowing from banks, using PHA's promise of aid as security. If construction is slow getting started, these notes can be refunded.

3. When final cost of the project has been reasonably determined, the agency will authorize a bond issue to cover the entire cost. This stage will usually be reached sometime after all major construction contracts have been let on a fixed cost basis and secured by performance bonds. Actual construction will be well along toward completion.

The cost estimate must be approved by PHA, since the cost largely determines the government subsidy.

4. Bonds will be offered at public sale to the lowest bidder. The proceeds will repay temporary borrowings and provide funds for completing the project. The underwriters—bankers and security dealers who buy the issue—will then distribute the bonds to individuals, trust funds and savings institutions.

Bankers believe that selling the bonds to the public will be relatively easy. The exact form of the bonds is not yet known, since none have been issued. But they are expected to receive the very highest quality rating. This is because the Housing Act of 1949 permits a setup unusually favorable to the bondholder.

Here is the protective feature which is expected to give housing authority bonds a wide market:

Under the Housing Act, PHA is authorized to subsidize local authorities for the amounts by which they fall short of meeting operating expenses plus bond interest and amortization. Therefore, it is expected that housing bonds will be secured by a contract with PHA which pledges sufficient annual federal payments.

Probably PHA will make these payments directly to a fiscal agent for the bond issue. The agent (a local bank) will distribute payments to the bondholders. In effect the bonds will be guaranteed by the federal government. Of course, any surplus rental revenues could also be used to repay bondholders. But the contract with PHA will assure payment even if revenues fail.

This is something new in construction finance. Up to now, bonds floated by local housing authorities have been revenue bonds. Repayment has depended on revenues of the particular project, supplemented by federal payments of a contingent nature. The federal contributions have been contingent on good performance by the local housing agencies. That was a requirement under the old law. And it has kept analysts from giving housing bonds the highest rating.

But if the new authority bonds are drawn up as now expected, they will be serviced by unconditional federal contributions—whether or not the projects are successful. This federal backing will make the housing obligations more like U. S. government bonds than like municipals. But, like municipals, they will be tax-exempt. And, also, like municipals, they will be distributed through private bankers and security dealers.

Since all the bonds will enjoy federal support, the name of the issuing locality will make little difference. Any locality will be able to get underwriting from nation-wide syndicates.

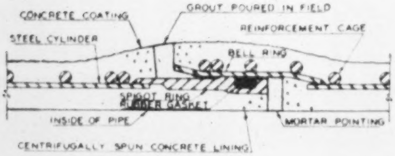
How will a big supply of these top-grade bonds affect the market for other municipal issues? It's still too early to tell precisely. Much will depend on the quantity of housing bonds which hits the market at any one time. And how much the U. S. government is borrowing will also be important.

But the general effect of $7 to 8 billion of new high quality bonds (over a 5-year period) isn't hard to forecast. There are only about $2.5 billion of AAA municipal bonds outstanding now. And probably not more than $5 billion AA municipals. So the housing issues will about double the supply of top quality bonds in this field—and triple the supply of best grade. That's going to raise interest rates on all municipal borrowings, unless the supply of funds increases sharply.

The first heavy marketings of these bonds will provide an interesting test of the construction money market. The results will be significant not only for housing but for all publicly financed construction. ENR will publish a later TREND on this subject.

CONSIDER THESE ADVANTAGES OF AMERICAN CONCRETE CYLINDER PIPE

—for main water transmission lines



Manufactured in diameters of 14" through 42" in nominal laying lengths of 30', and for operating pressures from 100 psi upward.

This composite, modified prestressed pipe —

√ Combines the physical strength and characteristics of steel with protective features and permanency of well-made concrete.

√ Will, under normal bedding and backfill conditions, successfully withstand external or trench loads up to 10 ft. of cover or more. Excessive loads are safely provided for by special bedding or backfill.

√ Has ample strength for the occasional concentrated loading which is sometimes met in practice.

√ Will remain water tight under conditions of foundation settlement or soil movement within the limits generally met in water works practice.

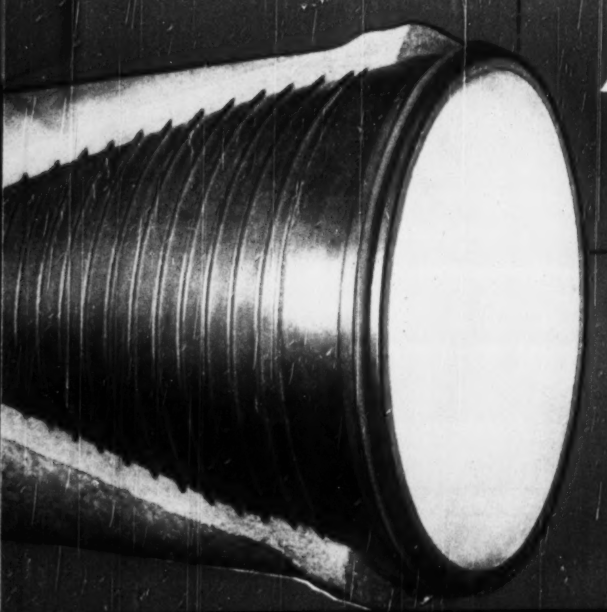
√ Has a long life with freedom from corrosion or deterioration. Concrete encasement protects steel cylinder and reinforcement from electrolytic action and deleterious ground water.

√ Has a conservative design basis and assumed unit stress which provide ample factor of safety for all normal conditions of service including surge and water hammer.

√ Will safely withstand sudden and extreme increases of pressure, or other disturbances, which might tend to burst or shatter ordinary types of pressure pipe having less elasticity.

√ Has ample strength to withstand all normal handling conditions.

The economies of American Concrete Cylinder Pipe are reflected in initial cost, ease of installation, sustained capacity, and trouble-free service. These, together with the above design features, mean substantial savings in the cost of delivered water. Complete information is available upon request.



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Cutaway illustration shows spigot end of 24" diameter American Concrete Cylinder Pipe. The round rubber gasket, upon closure, is compressed in the spigot groove in the manner shown by the above diagram. Note cement-concrete protection, inside and out.

EDITORIALS

"Which Road Do You Choose?"

A FOLDER is being circulated by the U. S. Chamber of Commerce with the above caption on the fly leaf over a picture of a sign post at a road fork with arrows marked "This Road Federally Controlled" and "This Road State Controlled." This circular contains an appeal to write or telegraph Congressmen opposing the 25% increase in federal aid allocated to work on the Interstate Highway System that is proposed in the federal-aid highway program now before Congress.

The highways to which the increase would apply total to 38,000 miles of 339,000 miles in the nation's primary highway system. They were selected a few years ago by the state highway departments, at the request of Congress, as being essential to national defense. At that time Congress urged the states to bring this limited mileage of defense highways up to specified standards at the earliest possible date. Increasing the federal contribution to the cost of bringing these highways up to the standards set by Congress now is proposed as a means to that end.

The Chamber of Commerce sees this proposal to place 75% of the cost on the federal government as a step toward abandonment of the traditional 50-50 sharing of cost between federal and state governments. It also sees in it a move toward greater federal control and the inevitable weakening of the state highway departments.

We can see no such dire consequences in this proposal. We can, on the other hand, see great harm done to the entire federal-aid highway program by a campaign of letters and telegrams such as the chamber proposes. Most of those who write or telegraph their Congressmen will not have a clear understanding of what they are opposing. The end result, therefore, could be the creation in Congress of an impression that there is widespread opposition to the expanded road program now being considered.

Most of the roads designated as part of the strategic Interstate Highway System are densely used highways in need of modernization that are equally important to this nation's peacetime economy. Yet the highway departments are finding it difficult to replace them as rapidly as they should because rural legislators are opposed to concentrating such a large part of available state money on a relatively few miles of highway in urban regions. Hence the reconstruction of these important roads lags and the whole nation suffers.

The 75-25 division between federal and state governments of the cost of work on these roads was evolved to meet that situation. Less state money will go into those roads, hence a greater mileage can be built in any one year without diverting funds from other state work.

The federal government is asking no greater control over these roads in return for the greater contribution to their cost. Its contribution to all other work on the federal-aid system will continue at the traditional 50-50 division. The need for more work on the limited Interstate System is so great that the risk of expanded federal control—if there is any—is worth taking.

The Chamber of Commerce might better concentrate on getting its thousands of local groups aroused to the need for more state funds for road work. Most state legislatures are not doing their part in providing the money needed for an adequate highway program. If all the states had sound plans for financing their share of an adequate highway program there would be less pressure being put on Congress to increase the federal contribution and less chance of more federal control. Final decision as to "Which Road Do You Choose" will be made in the state capitals, not in Washington.

Pointing the Way

IT IS NOT OFTEN that a group of citizens bands together voluntarily to point out the best way to do a public job. But it's just been done in Youngstown, Ohio (p. 32).

Under the leadership of the Chamber of Commerce, a group of laymen—representing labor, business, industry and the city administration—made a complete investigation of means for financing sewage-treatment works. In the end, they've turned out a sound action-stimulating report.

With the help of experts, the committee studied all financial aspects that are interrelated with legal and engineering considerations. They listened to testimony of specialists and waded through all the literature they could find on Youngstown's sewage problems. They debated the angles and then agreed to recommend a complete line of procedure for getting good sewage-disposal facilities at the least cost.

The report promises to be a bible for councilmen in other cities who must accept responsibility for such planning. It covers the reasons why the work must be done, outlines the most acceptable method for financing the work, and lists the steps by which the work should be carried out, including hiring experienced consulting engineers.

What is so significant about this Youngstown action is that some outstanding citizens recognized their responsibility, and then did something very concrete about it. They did not sit on their hands or avoid looking at the problem. By facing their problem boldly they have made it more difficult for the responsible citizens of other cities to look in the other direction when sewage treatment is mentioned. The example set by these citizens of Youngstown should be widely followed.

Builder: Fred C. Trump, New York *Architect:* Seelig & Finkelstein, Brooklyn
Steel Fabricator and Erector: Simon Holland & Son, Inc., Brooklyn

New Apartment Project at Entrance to New York Harbor

Commanding a sweeping view of both the Atlantic Ocean and The Narrows, leading to New York's Upper Bay, this new apartment project at Bensonhurst, Brooklyn, has facilities for some 1360 families. Known as the Shore-Haven Apartments, the project consists of thirty-one 6-story buildings. They are elevator-equipped, have oil heat, and contain apartment units of from 2 to 4½ rooms.

Standing beneath the red-brick exteriors of these attractive apartment buildings are steel frameworks of Bethlehem Structural Shapes.

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ENGINEERING NEWS-RECORD

MARCH 30, 1950 VOL. 144 NO. 13

House group hits Engineers on civil works cost boosts

Stinging criticism directed at Corps by Appropriations Committee in report on money bill—Similar but lighter treatment given USBR on transmission lines

Two major federal construction agencies were in bad with the House Appropriations Committee this week.

The Corps of Engineers was told to do a better job on cost control than it has done and to stop spending more money than Congress bargains for when it OK's Corps jobs.

The Reclamation Bureau was told that sometimes it is "less than candid in presenting its budget proposals," and it was notified that the committee "would be happy to see officials of this bureau display more candor."

• **Hardest on Engineers**—The Corps was hit much the harder, both in the report and in the appropriations contained in the accompanying bill. Qualified observers believed the committee off base on much of its criticism, but were not able to refute some of the charges. The result:

1. The committee lopped $198 million from the $798-million budget proposed for the Corps' civil works program. Almost $190 million of this came from flood control and navigation items.

2. The committee recommended that no funds be granted the Corps in fiscal 1951 for preparing new project plans. But the committee approved comparable planning funds for the Reclamation Bureau.

3. The committee instructed the Corps to complete with funds allotted in the current bill 28 projects now under construction.

• **Corps' friends pitch in**—Despite the stinging report, the Corps wasn't without friends in Washington last week, when the report was issued. Sen. John L. McClellan, Arkansas, and Rep. Will M. Whittington, Mississippi, both Democrats, went to the Army's defense at the annual meeting of the National Rivers and Harbors Congress, at Washington. In the nature of Washington's annual appropriations battles, it could be expected that much of the House committee cut would stick, after bitter debate, when the House votes on the bill. However, House cuts will be fully restored or more so when the Senate votes on the bill. Then the conference committee will determine what's to be spent, in the light of such factors as record votes, if any, in either house, the effectiveness of the agencies' counterattacks during Senate hearings, and the fact that 1950 is an election year.

• **As for reclamation**—Criticism of Reclamation was less widespread but not without its sting. The bureau was specifically told not to spend any money from any appropriation for a transmission line from Shasta Dam, in northern California, to the Oregon border. And it was accused of being "less than candid" for its handling of a line denied last year. That line from Estes to Valmont, Colo., as it was known—and denied—in last year's bill, was returned this year as the Estes-Levner line. The committee noted that Levner "is but a short distance" from Valmont, and added:

"Obviously, this is basically the same transmission line as the one denied for 1950, yet the Bureau has not bothered to point out this fact affirmatively to the committee."

• **Reclamation cuts**—In addition to halting the Shasta-Boundary line, the committee chopped Reclamation's $320-million request by $23,000,000, and it cut the advance planning request by one-third. It specifically denied authorization for the Delta steam plant, part of the Bureau's Central Valley project power works and for numerous other transmission lines and substations on the Central Valley, Colorado-Big Thompson and Missouri Basin projects. Power fund deletions totalled $5,653,000.

• **Totals keep mounting**—Much of the basis for the committee's criticism of the Corps of Engineers could be found in this quotation which is taken from its report:

"It is desirable to call to the attention of the membership of the House the fact that the original estimated total federal cost of the budgeted river and harbor and flood-control construction projects, including the Lower Mississippi and Sacramento River, Calif., was $4,364,057,750. The present total estimated federal cost of these same projects is $6,634,408,070, an increase of $2,270,350,320, or 52 percent."

(*Continued on p. 20*)

New York OK's Thruway Authority

New York's legislature approved and Governor Dewey has signed (last week) a bill establishing a Thruway Authority to build the 486-mi express highway from Buffalo to New York City (see also pp. 26 to 31 this issue).

Also approved was a bill proposing a constitutional amendment which would let the state pledge its credit on as much as $500-million worth of Thruway Authority bonds.

Named to the authority, and confirmed by the Senate, were Bertram D. Tallamy, state superintendent of Public Works, who'll be chairman; R. B. Bixby, an assistant executive secretary to Dewey; and David J. Martin, New York hotelman and intimate of Mayor O'Dwyer, of New York City. The appointment was suggested by O'Dwyer, apparently in return for his support of the Thruway legislation despite Democratic party opposition.

Work on sections of the Thruway will start soon, according to state sources. The entire project will not be finished for four years.

The constitutional amendment was required because the state cannot now pledge its credit on any bonds but its own. Had the authority issued bonds without state backing, it would have faced substantially higher interest charges than it will with state backing. The amendment will have to be approved again by next year's legislature and approved by referendum vote in November, 1952, to become effective. But the first step taken last week will help lower interest rates should the authority issue bonds before the amending process is complete.

Whether the authority will issue bonds or obtain money from the state, to be reimbursed when its bonds are sold, is not now known. The authority is expected to take the least expensive course.

(*Continued from p. 19*)

The committee "recognized" that part of the increase arose from construction cost increases and from modifications which were "expressly authorized."

But it charged the major portion came from modifications permitted under the authorizing legislation to be made by the Chief of Engineers.

The committee said it had Corps data which showed that on only three of 63 projects on which costs rose was the increase due to additional legislative authority. Modifications authorized by the Chief of Engineers, the report went on, "seem to account" for 58 percent of the increases on these projects and:

". . . For some reason not quite clear to the committee, over 33 percent of the increase is placed on higher construction costs. No construction cost index known to the committee substantiates this percentage increase from November, 1947, to November, 1949."

• **Blame it on the Chief**—After reviewing various cost indexes, the report made this charge:

"The simple conclusion is that the Chief of Engineers has committed the government and is continuing to commit the government to the expenditure of funds far in excess of amounts contemplated by the Congress, either at the time of the original authorization of the projects or at the time the funds were appropriated for the initiation of construction."

It added that the committee believes the Chief of Engineers has "very little cost and engineering data" immediately at hand on the basis of which to judge such modifications. Such data, it said, is kept in the offices of district engineers, and it added:

"Consequently, these excessive obligations of federal funds are being incurred by the district engineers and are, it would seem, approved by the Chief of Engineers as a matter of form."

The committee said any construction authority would testify that modifications after construction starts are expensive. The committee said that such practice "borders on profligacy," and charged that the necessity for modifications is indicative of improper advance plans.

"Such practice is not proper stewardship," the committee added, calling for more detailed advance planning. It warned that when modifications are called for hereafter, they'll have to be justified in detail.

• **How's that again?**—Observers pointed to some weak spots in the committee's indictment. The committee, they noted, cited two reasons for cutting $198 million from the Corps budget request. One was that last year's long delay on the civil functions appropriations bill—it didn't become law until October—cost the Corps one construction season.

"Substantial unobligated balances of project funds as of Dec. 31, 1949, clearly support this factor," the committee declared.

But testimony by Maj. Gen. Lewis A. Pick, Chief of Engineers, seems not to support this. The Corps obligated half its $635 million fund by the end of 1949, has practically all of it scheduled for obligation by June 30, when the fiscal year ends.

• **Concentrate but spread out**—The committee's second reason for cutting the funds for next fiscal year is its opinion that the country would be better served if construction were spread out. This tended to controvert an opinion it cited earlier, suggesting that it's better "to limit construction to fewer projects and complete or nearly complete those projects in order that the anticipated benefits may be derived therefrom prior to embarking on construction of additional projects."

The committee, explaining its desire to spread out work, noted that unemployment is now higher than at any time since the war. And it cited the double possibility that a greater spread of federal construction might both furnish employment where it is urgently needed and also gain the government reduced construction costs that are always concomitant with a depression.

• **Not necessarily so**—Construction men were skeptical about concentrating on fewer projects to complete them and obtain their benefits. They pointed out that:

1. Large Corps projects, by their nature, have to be built in stages, over a number of years. And there's a top limit of money that can be spent economically on any given job in any one year.

2. Halting of plan preparation for a year would inevitably upset the orderly award of contracts in later years.

At the National Rivers and Harbors Congress meeting, reactions were bald. Whittington, an ancient defender of the Corps, turned to General Pick, who was there, and asserted:

"We're behind you, General, 100 percent."

Senator McClellan, another Engineer supporter, told ENGINEERING NEWS-RECORD that open hearings would be held by the Senate Appropriations subcommittee in charge of the bill.

Corps defenders would have a chance to defend the agency then, he emphasized.

ASEE group foresees shortage of engineers

Report contradicts recent BLS finding that market will be glutted by engineering graduates in future years

No glut but a shortage of engineering graduates is the prospect foreseen by a sub-group of the American Society for Engineering Education's Manpower Committee.

The findings clash with those of a study published recently by the U. S. Bureau of Labor Statistics (ENR March 16, p 26). BLS saw the market for such graduates glutted until about 1956. ASEE's committee says there'll be fewer than will be needed from 1954 to 1965 unless the percentage of high school graduates entering engineering schools is increased.

• **Fewer freshmen**—Freshman engineering enrollments have declined steadily since 1946, the ASEE group reported. Last fall, they constituted a lower percentage of June, 1949, high school graduates than prewar average enrollments did. Numerically, last fall's freshman engineering class was not half that enrolled in 1946.

The ASEE group assumed a gradual return over the next three years to prewar "survival ratios" (seniors to entering freshmen four years earlier). Applying these ratios to U. S. Office of Education estimates of future high school seniors indicates a steady decline in engineering graduates beyond 1953 to about 15,000 in 1957 (BLS predicted 18,000 in 1956) and then a slow rise to about 21,000 in 1965.

The ASEE committee took some exception to BLS' estimates as to the number of engineers needed. It quoted an Engineers Joint Council survey showing that in 1949, about twice as many engineering graduates went into actual engineering jobs as BLS assumes will be needed early in the current decade. Manpower Committee reports show that engineering is an expanding profession.

• **New jobs opening**—Not only its total but the ratio of engineers to all employment has risen steadily. The need for engineering in industry and government continues to rise; the tendency of engineers to develop new products and processes creates new employment opportunities and employers show a growing tendency to hire men with engineering training for non-engineering jobs.

Indicated number of engineering graduates in 1952 will be much smaller than the number actually placed in 1949, the ASEE committee reported. By 1953, graduates are expected to be fewer than BLS estimates will be needed for actual engineering jobs.

Operating, maintenance efficiency key to rail progress, AREA told

American Railway Engineering Association convention finds much optimism as to industry's competitive future

The spirit of optimism as to the future of U.S. railroads—prevalent at last year's golden anniversary of the American Railway Engineering Association—appears even stronger today.

Over 1,000 members and nearly 700 guests attended the 49th annual meeting of the association in Chicago.

Increased efficiency in both the operation and maintenance of equipment and plant was seen as the principal means of maintaining income. Many believe that more and better publicity is needed for the railroads to protect their share of transportation. And better service to the public will be forthcoming if revenues from an increased—or at least a sustained—volume of traffic are such as to permit needed improvements in plant and equipment.

• **Many problems ahead**—Railroads still face many complex and critical problems, declared James H. Aydelott, vice-president in charge of operations and maintenance for the American Association of Railroads.

"But," he said, "these problems would be much more serious today if it were not for the economies resulting from increased efficiency in railroad operations and maintenance." He backed up this view with the statement that the costs of producing transportation last year would have been $900 million more, had the railroads still been operating at their 1941 levels of efficiency.

Taking an optimistic view of the future, Aydelott added that greater savings can yet be made.

Similar optimistic views on improving rail transportation were held by J. W. Barriger, president of the Chicago, Indianapolis and Louisville Railway. "Railroad management," he said, "can solve most of its present and future problems if the railroads are provided with the improved plant, equipment and facilities which will produce better service with less expenditures for labor and materials."

• **Eliminate rail crossings**—Looking to the future, Barriger pointed out that many improvements are still needed in railroad construction and equipment, maintenance procedures and operating methods. With but few exceptions, he said, rail approaches to cities—both large and small—are littered with dangerous railway and highway crossings. These must be corrected from the standpoint of faster service, as well as safety.

Many stretches of track need to be brought up to a higher operating efficiency by establishing easier grades and curves, Barriger declared. Main line grades over 0.5% are a great handicap to efficient operation.

Curves which did not interfer with the operation of trains at 45 to 60 mph a few years ago now constitute real impediments to sustained maximum speed operations needed for freight and passenger schedules to meet present competitive conditions.

The increasing tempo of modern train movement makes non-interlocked railway crossings as out of date as a mud road, and signals must expedite and direct; not merely protect train movement, Barriger concluded.

• **Accelerated research need**—In his presidential speech at the opening session, F. S. Schwinn, assistant chief engineer, Missouri Pacific Lines, stressed the need for accelerated research—both in the laboratory and in field investigations of railroad operations and maintenance.

• **New officers**—George L. Sitton, assistant chief engineer, Southern Railway System, was elected president, succeeding Schwinn. Henry S. Loeffler, assistant chief engineer, Great Northern Railway, was advanced to senior vice-president, and Tom A. Blair, chief engineer, Atchison, Topeka and Santa Fe Railway, was elected junior vice-president.

Honorary membership in AREA was presented to E. M. Hastings, chief engineer of the Richmond, Fredericksburg and Potomac Railroad.

Walter S. Lacher, secretary of the association for the past 12 years, will retire April 1. His successor is Neal D. Howard, western editor, RAILWAY AGE.

• **Committee reports**—Following conventional pattern, most of the three day meetings were taken up with reports from the 21 committees.

One such report, by L. T. Wyly, professor of structural engineering, Purdue University, brought the convention up to date on studies of failures in bridge floor beam hangers.

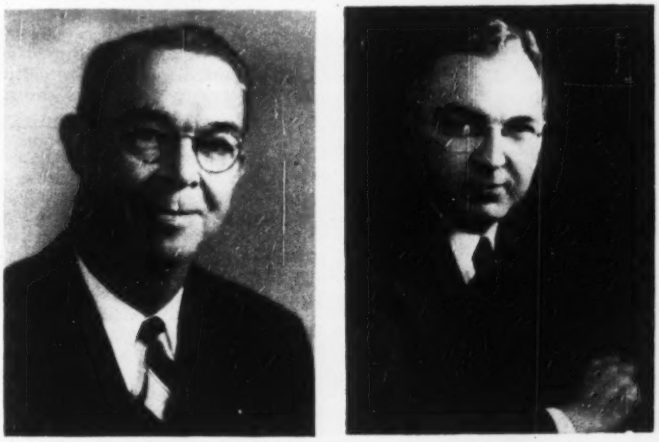
Fifty Class I railroads have reported 170 failures of floor beam hangers in 83 spans of 50 bridges, some of which are 50 years old. All of these failures were by fatigue of metal.

Of 91 failures in riveted truss spans, only 12 hangers failed at point of greatest computed bending stress. The remainder failed through the lowest line of rivets connecting the hangers to the top-chord gusset plates.

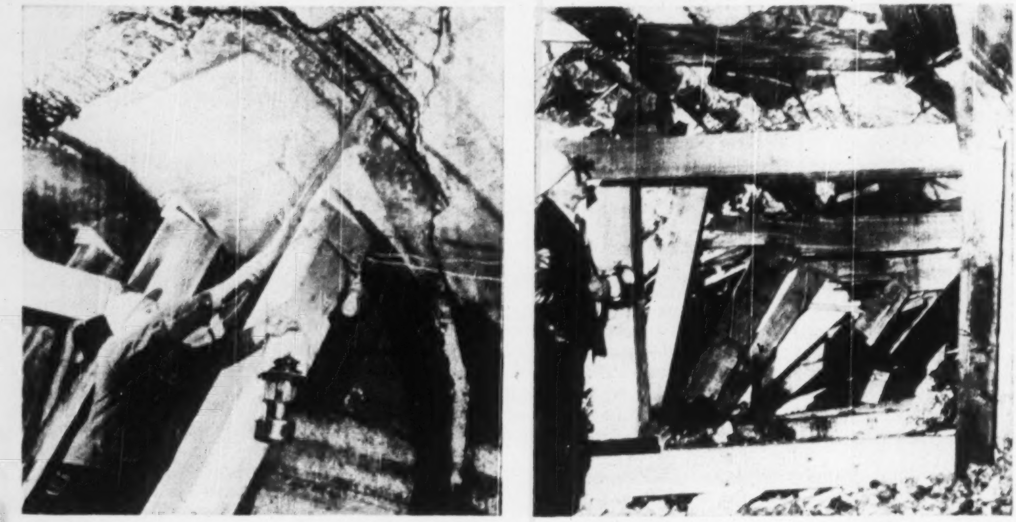
In pin-connected spans, 55 failures started either at the re-entrant angles of the copes of the hanger flanges or in the outstanding legs of the angles in the forked ends at the pins.

• **Simplified concrete proportioning**—Presented by the masonry committee, for adoption at next year's meeting, was a simplified guide to proportioning structural concrete by the water-cement ratio method.

Complete with graphs and illustrations, and presented in non-technical language, the proposed procedures are intended primarily as a guide for young engineers and masonry foremen on smaller jobs.



AREA ELECTS OFFICERS—G. L. Sitton, left, of the Southern Railway System, and Neal D. Howard, of Railway Age magazine, were elected president and secretary, respectively at AREA's recent meeting.



TUNNEL COLLAPSES UNDER SLIDE—Heavy reinforcing failed to save the No. 3 tunnel of Colorado's Grand Valley irrigation project at Grand Junction, Colo., when an estimated 3,000,000 cu ft of earth slid from a mountainside. Contract for an emergency bypass tunnel was to be let this week in hopes that crops could be made this year. (Wide World Photos.)

USBR races calendar to save crop year

Fast action by the Reclamation Bureau in negotiating a contract for a bypass tunnel is counted on to permit resumption of water delivery by June 1 to 29,000 irrigated acres of the Grand Valley Project at Grand Junction, Colo.

Just three weeks ago, earth pressures in a soft ground area that had given trouble for 20 years completely crushed and closed a tunnel 7,300 ft long which carries the entire water supply for the affected acreage. A week later, Chief Engineer Leslie N. McClellan had a group of contractors in his Denver office and on the site for consultation and study of plans.

Last week, he planned to award the job on a negotiated bid basis for June 1 completion of 2,200 ft of hard rock tunnel bypassing the soft ground area. The new link will be driven through solid sandstone and will be left unlined the first year.

The damaged tunnel is 11 x 11½ ft with a horseshoe section. Built between December, 1913, and February, 1915, it passes mostly through solid sandstone, with some parts in clay or adobe interspersed with boulders. The base was lined with plain concrete—no reinforcement.

One 600-ft section has given trouble for years. The Reclamation Bureau put in shoring and bracing to save the tunnel and in 1941-42 did a major patching and relining job for 960 ft. An inspection in March, 1949, showed no immediate danger of failure, but seven months later—in November—another inspection disclosed a much worse condition. Surveys and borings for the bypass began immediately.

Despite the sorry state of the tunnel section, bureau engineers hoped to put water through it for the 1950 growing season and to complete the bypass before the spring of 1951. The recent collapse—which coincided with a 100,000-yd slide off the same mountain to the Denver & Rio Grande tracks—forced faster work. Soft ground had been moving there for a long time; the railroad has had to keep chipping away at the foot of the slope.

By getting water June 1, farmers on the project will be spared a crop loss estimated at $2,800,000. Waiting even until that date may cost them an estimated $200,000.

NEWS BRIEFS

Fire Rating Upped—Steel columns protected with perlite plaster get a four-hour fire rating, according to the Perlite Institute. It says the Underwriters Laboratories has completed tests on columns protected by 1.5 in. of perlite plaster on metal lath.

What's in a Name?—Massachusetts' Senate has refused to name the Mystic River Bridge, between Boston and Chelsea in honor of Gen. George S. Patton, Jr., World War II hero

Just Like Coney Island—Los Angelenos probably will regain the use of much of their quarantined beach front in July when the city's Hyperion sewage treatment plant will be in partial operation. Work is three-quarters done at a cost of almost $38,000,000.

How Best to Backfill?—California's East Bay Municipal Utility District, the Institute of Transportation and Traffic Engineering at the University of California, and the city of Oakland, Cal., are cooperating in a performance study of trench backfills. The city and district will collect a wide range of samples, classify and analyze them. The institute will evaluate the data.

Launch 'em to Sink 'em—Two mammoth caissons for the main center piers of the Yorktown bridge (ENR Feb. 16, p 13) were to be launched at Newport News this week for towing into the York River. Concrete ballast will be required to keep the caissons from capsizing.

Cost Cutting Promotion—The Producers' Council has announced a $15,000 fund, contributed by building materials makers, for the promotion of modular coordination as a method of cutting building costs. The American Institute of Architects, cosponsor of modular coordination with the council, also is contributing.

Hemisphere sanitation progress told

Reports on sanitation developments in 20 Latin American republics, Spain, Puerto Rico and the United States studded the program of the Congress of the Inter-American Association of Sanitary Engineering at Mexico City, March 16-26.

About 230 delegates registered for the second biennial meeting of the group, which traces its origin to wartime projects sponsored by the Institute of Inter-American Affairs.

Adolfe Orive Alba, Mexico's Minister of Hydraulic Resources, delivered a welcoming message from President Aleman. Alba also related some of Mexico's progress in sanitary engineering. He disclosed completion of new potable water systems in 80 communities, serving 600,000 inhabitants. Work is underway now on 145 more such systems, to reach 1,150,000 persons, Alba said.

More than 50 papers ranged from the training of sanitary engineers to the application of aerial photography for design studies. One dealt with the reconstruction of one of this hemisphere's earliest water treatment plants, at Manaus, Brazil, and another with the design of a Mexican air-relief valve for aqueduct pipelines.

- **Larger role sought**—Dr. H. G. Baity, of the University of North Carolina, described the sanitary engineer's place in the world. Failure of a medical doctor to appreciate the sanitary engineer's capabilities can waste the latter's talents, Baity asserted. He criticized certain Latin American governments for failing to support sanitary engineers in public health work. In the United States, he went on, the sanitary engineer has a larger task in several fields—housing and pollution abatement, for example—than he had half a century ago.

High-speed transport has made the United States particularly vulnerable to epidemics, Baity said, a condition which requires continuous sanitation vigilance.

John Geraldo da Silva, sanitary engineer of Belem, Brazil, described the treatment plant rehabilitation at Manaus, 1,000 mi above the Amazon River's mouth. A water treatment plant was partly completed there in the 1900's, when the city boomed under the impact of rubber trade. Several advances in practice found there—including an elevated steel storage tank of 1.5 mgd capacity—weren't found elsewhere for two more decades, da Silva asserted. Old basins, apparently planned for sedimentation purposes but never completed, are being converted into settling units. A battery of pressure filters which failed to work because coagulation facilities weren't complete, will be put into service. The report represented a cooperative study with the Institue of Inter-American Affairs. Reconstruction funds come from the Brazilian government.

- **Visit Lerma project**—Highlight of the inspection trips was one over the Lerma water supply project, being built by Mexico's federal district for Mexico City. It taps a lake 40 mi northeast of the city and sends an 11-ft aqueduct through several mountain ranges by tunnels, the longest of which is 9 mi. It has been under construction since 1943, probably won't reach full operation until 1952.

Baity was elected president to succeed Clarence I. Sterling. Ludovicio Ivanissevitch, Buenos Aires consulting engineer, was elected vice president, and Ralph Van der Werker and Donald Snow, both of the U. S. Public Health Service, were re-elected secretary and editor respectively. The next Congress will be at Buenos Aires in 1952.

Van der Werker reported that the association now has 15 local sections functioning, with a membership of 1,481. Nineteen manufacturers hold memberships. These U. S. manufacturers exhibited at the Congress: Dorr Co., Lock Joint Pipe Co., Permutit Co., Johns-Manville Co., Rockwell Manufacturing Co., Neptune Meter Co., Infilco, Builder's Iron Foundry, Wallace & Tiernan Co., and the Hudson Manufacturing Co.

◆

N. Y. Port Authority hit for selecting bidders

Criticized some time ago (ENR Dec. 22, 1949, p 23) for not selecting the low bidder on one of its construction jobs (the New York Union Bus Terminal), the Port of New York Authority was criticized again last week for using a "selected" bidders list on another job.

The job was for foundations for PNYA's new permanent Idlewild Airport administration building, in Queens County. At a bid-opening March 17, a $63,187 contract was awarded to the Stock Construction Co., New York City, one of seven selected bidders.

The award brought an immediate protest from the Public Buildings Contractors Association, Inc., a 10-year-old group of 35 New York City contractors active in public construction work. In letters sent to the governors of New York and New Jersey, and the state legislatures, the association:

1. Cited the bidding from a selected list, and said it had been informed that a similar list of bidders was being asked to submit tenders on superstructures for the same structure.

2. Reiterated its belief that bidding should be on a public basis and awards made to the lowest responsible bidders; commented that PNYA "is engaging in a practice which may, if it has not already done so, prove detrimental to the public interest."

In a letter commenting on the resolution, S. A. Houck, organization secretary, added:

"Taking proposals from a restricted list of bidders strikes at the very heart of the concept of open competitive bidding on public work, which this association has espoused."

Missouri River water use is defined by resolution

A resolution recognizing the need for Missouri River water for domestic, municipal, sanitation and sewage purposes east of the Ninety-eighth meridian has been approved by the Missouri Basin Inter-Agency Committee.

The group adopted a resolution written by Clifford H. Stone, Denver authority on water rights, and presented on the insistence of Gov. Forrest Smith, of Missouri. It said, in part:

"That in review of project construction and operation plans, and in any action taken by the committee in respect to such plans, it shall always be its policy in the interest of public health and welfare to protect and recognize the necessity of making available adequate quantities of water for present and potential requirements for domestic, municipal, sanitation and sewage purposes east of the Ninety-eighth meridian. . . . It is further the view of the committee, based on engineering advice, that such objective can be fully accomplished without serious interference with the basic Missouri Basin comprehensive plan."

The proposal is designed to assure that upstream states, protected by law against downstream navigational use of water to the detriment of irrigation, don't use water to the detriment of downstream consumptive uses.

◆

To remedy subsidence

The Long Beach, Calif., city council has released $2,500,000 from an impounded oil revenue fund of $50,000,000 to pay for some remedial work involving Terminal Island subsidence.

The fund will also be used for filling in certain areas for use as future oil-drilling sites.

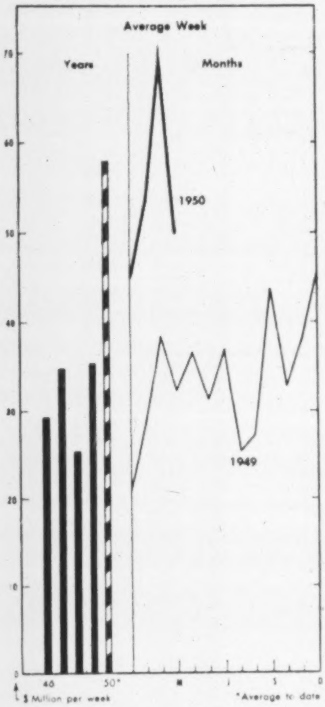
CONSTRUCTION BUSINESS

Exit 608—Housing boom keeps rolling

Federal mortgage insurance under section 608 expired March 1 (see also p. 13), but March contracts for large-scale housing projects are still running 50% ahead of last year.

There's a backlog of 608 applications big enough to keep apartment contracts rolling the rest of the year at the 1949 rate.

Residential bldgs. — private



Mass housing contracts so far this year average $58 million a week, 75% above a year ago. Housing units of all types started January and February average 60% above the rate of housing starts last year.

These statistics show that this winter's building boom has been unseasonally high. But don't get confused by the flying figures.

Contract award data show the trend first because BLS reports on starts are late, and BLS coverage is for all types of nonfarm homes.

Contract awards each week tell what's happening now in the large-scale housing field. March is off to $50 million a week, compared with $71 million in February and $54 million in January, but still 40% higher than the average of $35 million a week for all of 1949.

• What of the rest of 1950?—BUSINESS WEEK, a McGraw-Hill publication, estimates housing volume this year will surpass last year's record 1,025,800 homes.

A survey of leading home builders' plans indicates. Privately-built apartments may decline slightly, they say, but public housing will take up the slack.

Housing projects for home ownership will be more numerous than ever, if leading builders follow through with their plans.

Statisticians in the Bureau of Labor Statistics haven't yet changed their prediction of 900,000 units started, 12% below last year—but they're thinking in bigger terms now, unofficially.

Ewan Clague, Commissioner of BLS, says there is still enough backlog housing demand to keep housing volume above a million units yearly for several more years. Morris Livingston, Commerce Department economist writing in this month's Survey of Current Business reinforces Clague's thesis. He sees three more years' near-record volume—about a million starts per year.

• Easy credit—After rejecting middle-income housing co-ops, the House voted another $4½ billion last week for federal mortgage insurance, secondary mortgage purchases, and veterans and college housing loans. This exceeded the Senate bill in mortgage guarantee authorizations. The Senate cut its bill down to $2½ billion in an unsuccessful attempt to get the co-op section passed.

Whatever the outcome of a Senate-House conference, lots of easy housing credit is certain.

Highway commission sets 'prevailing wage'

The Texas Highway Commission has the power to determine "prevailing wages" to be paid under its contracts, and these wages may not be the union rate, District Judge J. Harris Gardner held in an El Paso case (CD 1/10, 1/23).

"They (the commission) have broad power to find the prevailing wage," he ruled. "It is not necessarily the union wage. The commission and the union might not need the same men, nor the same type jobs."

Judge Gardner denied a temporary injunction sought by the El Paso Building and Construction Trades Council to halt bidding on a portion of an El Paso overpass job because of the method of wage determination.

The test case challenges the Highway Department's whole plan of deciding prevailing wages. The council will appeal the case to the Austin Court of Civil Appeals.

In revising the wage structure for all Texas counties, the commission last December fixed the prevailing wage rate in El Paso area at 85 cents to $1.65 an hour, depending on job classification. Carl Knight, business agent for the El Paso union council, testified the range should be 85 cents to $2.25.

The law gives the Highway Commission discretion to find "prevailing" wages rather than to fix minimum rates.

N. Y. unit prices lowest since 1946 on housing

Bid competition on five contracts for New York Housing Authority's Astoria Houses project brought about the lowest unit costs in New York public housing since early 1946. There were 58 bidders on the five contracts.

Low bidders on the five contracts bid $4,606,952, which comes out to $0.739 a cubic foot, 12% below the bid made on a similar unit of the same project last May. The combined low bid covered 624 apartments in 12 buildings (exclusive of pilings). Since the two sections of the same project are comparable in design standards and construction, direct comparison of the two prices is valid.

In April, 1946, when Elliott Houses was bid, the cubic foot was $0.699. Construction costs rose on Housing Authority units until late 1948. Since then they have declined steadily.

Most recent bidding before yesterday's was in December, 1949 on the second part of Ravenswood Houses. Unit cost on that project, $0.807, was lowest since 1946, but 9% above this week's bid.

Low bidders are: Wilcox, Beine, Fish & McHugh—foundations and general construction, $3,639,000; Norman Heating Co.—heating and ventilating, $384,000; John G. Hellman—electrical work, $184,700; Novak & Rehner—plumbing, $384,700; and Seaberg Elevator Co.—elevators, $108,552.

BIDS AND BIDDERS

Major project news received after Construction Reports, page 54, went to press.

Arterial Highway Route—Department of Public Works, State of New York, Albany, plans 11.8-mi arterial route highway in Albany and Rensselaer, extending outside cities. Cost will be about $18,903,000.

Chemical Plant—Mathieson Chemical Corp., Baltimore, Md., will construct $13,000,000 plant to convert byproducts of natural gas into hydrocarbon chemicals, at Bradenburgh, Ky.

Bridge—George M. Brewster & Son, Inc., Bogota, N. J., was low bidder at $3,867,070 for piers and other work at Passaic River Bridge in Hudson and Essex Counties, New Jersey, when the New Jersey Turnpike Authority, Trenton, opened bids March 23.

Housing Project—The IBEC Housing Corp., New York, N. Y., will construct housing project in St. Louis, Mo., by own forces. Project will cost from $6,000,000 to $15,000,000.

Bull Shoals Power House—Wyche & Bruce Construction Co., Grapevine, Tex., was low bidder at $3,774,381, when bids were opened for Bull Shoals Power House in Arkansas. U. S. Engineers, Little Rock, Ark., opened bids, March 24.

Shopping Center—Don A. Loftus, & Associates, Wilmington, Del., plans shopping center at Wilmington to cost $15,000,000.

Generators—General Electric Co., Schenectady, N. Y., has been awarded contract for four generators for the McNary Dam, Ore., by the U. S. Engineers, Walla Walla, Wash., at $6,556,290.

Gas Pipe Line—Southern California Gas Co., and Southern Counties Gas Co., Los Angeles, awarded contract for lines in California to Western Constructors of Dallas, Tex., L. E. Dixon, San Gabriel, Calif., and Johnson-Western Gunite Co., San Pedro, Calif., at about $1,400,000. Consolidated Western Steel Co., Los Angeles, Calif., will supply pipe at about $4,600,000.

Passenger Terminal—Frederick Snare Corp., New York, N. Y., has been awarded contract to construct passenger terminal at Port of LaGuaira, Venezuela, by the Ministry of Public Works, Caracas, at about $3,048,000. This is final contract in large port development which is about eighty-percent completed.

Stripper Plant—Tennessee Gas Transmission Co., Houston, Tex., plans stripper plant at Gabe, Ky., to cost about $12,000,000.

Turbines for Chief Joseph Dam—Newport News Shipbuilding & Drydock Co., Newport News, Va., has been awarded contract for ten hydro turbines for Chief Joseph Dam, near Bridgeport, Wash., at $6,220,330. U. S. Engineers, Seattle, awarded contract.

Roller Bearing Plant—Timken Roller Bearing Co., Canton, O., plans roller bearing plant at Bucyrus, O., to cost about $4,000,000. Contract for project will be let soon and a second similar plant is also contemplated by the company.

Lining Patapsco Tunnel—City of Baltimore, Md., will open bids April 5, for lining Patapsco Tunnel for Baltimore water supply. Bids taken March 23, on which low bid was $2,151,000, were rejected. Leon Small is city water engineer.

Generating Plant—Public Service Company of Northern Illinois, Waukegan, Ill., is taking bids for altering generating plant at Waukegan to cost $3,000,000. Sargent & Lundy, Chicago, are engineers.

Plant—Austin Company, Cleveland, O., has been awarded contract for plant at Fort Madison, Iowa, for the Sheaffer Pen Co., Fort Madison, to cost about $2,500,000.

Divided Highway—Central Pennsylvania Quarry, Stripping & Construction Co., Hazelton, Pa., has been awarded contract for divided highway in York County by Pennsylvania Highway Department, Harrisburg, $2,189,934.

Gasoline Extraction Plant—Refinery Maintenance Co., Houston, Tex., will construct $3,250,000 gasoline refinery plant at Elk City, Tex., for Shell Oil Co., Tulsa, Okla.

High School—Bids will be opened April 18, for high school to cost $2,000,000, by the School District 17, Kennewick, Wash. E. W. Morrison, Seattle, is architect.

Plant—Collins Construction Co., Kansas City, Mo., will build Fairfax District Plant at Kansas City, Mo., for International Harvester Co., Chicago, Ill. Cost is about $2,000,000.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Mar. '50	488.35	234.75
Building Cost	Mar. '50	359.98	194.59
Volume	Feb. '50	305	134

$ Millions per week
1950
1950
100
1949
1949
This Week
Av. to Date

Activity This Week

As reported to ENR
(in millions of dollars)

Amount of contracts let

	Week of Mar. 30* 1950	Cumulative 1950 (13 wks.)	Cumulative 1949 (13 wks.)	% chge
Federal	$32.0	$415.2	$312.9	+33
State & Mun.	71.4	716.5	611.7	+17
Total Public	$103.4	$1,131.6	$924.6	+22
Total Private	160.5	1,468.5	947.8	+55
U. S. Total	$263.9	$2,600.1	$1,872.4	+39

* 6-day week

Contracts by type of work

	This Week	Cumulative 1950 (13 wks.)	Cumulative 1949 (13 wks.)	% chge
Waterworks	$4.3	$66.5	$34.8	+90
Sewerage	5.3	58.1	48.3	+20
Bridges	3.4	75.8	87.9	−14
Highways	33.3	232.3	127.2	+82
Earthwork, Waterways	22.9	95.3	168.4	−43
Buildings,				
Public	23.0	509.3	401.7	+27
Industrial	59.4	283.5	275.9	+3
Commercial	91.0	1,062.4	590.0	+80
Unclassified	21.5	217.1	138.2	+57

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1950 (13 wks.)	Cumulative 1949 (13 wks.)	% chge
NON-FEDERAL	$1,107.1	$1,268.4	−13
Corporate Securities	442.7	612.6	−28
State and Municipal:			
Exbl. Housing	475.9	515.9	−8
Housing	188.5	139.9	+35
Total Capital	$1,107.1	$1,268.4	−13

Toll Road Policy Needs Restudy

AN EDITORIAL

To anyone who tries to look beyond the present condition of emergency in the field of highway transportation resulting from the failure of road construction to keep up with demand, the rapid spread of toll roads should be cause for concern. This is so even if one concedes that every toll road now built or planned will fill a need that could not otherwise be met. The reason lies in the fact that these toll roads have been built without proper safeguards to keep them from being continued as toll facilities long after the justification for operating them as such has passed. As a result, the publicly owned toll highway of today can become just as pernicious an evil as was the privately owned toll road of a century or more ago.

That a national policy could have been developed a quarter century ago that would have served to limit the time during which tolls could be collected on any public highway seems improbable. But today, when the situation can be seen in its proper light, it should be possible to develop a policy that will speed the day when all roads again will be free.

Opposition to toll roads, as a national policy, was written into the Federal Aid Highway Act of 1921, which required that all roads built under its provisions "shall be free from tolls of all kinds." It was restated in 1939 in "Toll Roads and Free Roads," a report to Congress by the Bureau of Public Roads that grew out of proposals placed before Congress for a national system of toll superhighways. That report summed up for Congress the fundamental objections to toll roads, which are just as true today as they were then, although some advocates of toll financing would have us overlook the objectionable features.

What was not so clear then as it is now is that construction of a toll highway—which at best serves only part of the traffic through a particular region—tends to put off the day when the parallel free roads are brought up to adequate standards of safety and capacity. Also, since tolls cannot, as a practical operating plan, be applied to all needed highways, resort to toll financing for some highways serves to obscure the true picture of a state's real needs. Toll financing, moreover, provides an excuse to avoid a more realistic approach to meeting a state's entire need through higher gasoline or vehicle taxes or through an issue of general obligation bonds.

From the viewpoint of national policy the most serious aspect of the present toll-road situation is the probability that the collection of tolls will be continued on some or all of the toll highways long after there is any economic reason for it. The Port of New York Authority now collects much higher tolls on the Holland Tunnel than are needed to operate that facility, using the excess income to finance other activities. In somewhat the same manner Connecticut has used proceeds from its Merritt Parkway to finance part of the cost of the Wilbur Cross Parkway.

Permission to continue to collect tolls for purposes other than operating costs and bond retirement is specifically granted or is implied in most of the acts setting up turnpike authorities.

The Maine Turnpike Authority, for example, is authorized to build a toll road all the way across the state to the Canadian border. The road it has built from the New Hampshire line to Portland is through the only region where there appears to be sufficient traffic to make a toll road pay. But if that road does produce more than enough income to support its bonds the excess can be used for less profitable extensions to the north, with tolls continued indefinitely on the highway south of Portland.

Similarly, a brief but significant clause in the act setting up the New Jersey Turnpike Authority makes it possible for that agency to use the tolls it collects on the presently authorized 118-mile highway for extensions or feeder roads. In any state where that can be done, the temptation to do it will be strong once a turnpike authority has been set up as a going concern. No public agency likes to work itself out of a job.

No easy solution for the problem created by the establishment of these state toll-road agencies is apparent, since road building is a function of the states and their subdivisions, not of the federal government. The latter can only exercise indirect control through limits placed on the manner federal aid is used.

There are probably several ways by which the federal government could obtain persuasive powers to require that future toll roads be freed at the earliest possible time. One would be to authorize a limited amount of federal aid to any future toll road built along a route that would be suitable as part of the projected Interstate Highway System, provided the state would use the net income from tolls and other services for no purpose other than payment of bond interest and amortization. Such a plan, of course, would have the disadvantage of giving encouragement to a few toll projects that could not stand on their own feet.

A better plan might be evolved from the recent proposal of the American Association of State Highway officials with respect to the projected Interstate Highway System. The AASHO recommended that Congress authorize the states in future years to use their federal-aid funds to pay off the principal of bonds issued to finance toll-free extensions of the Interstate System. That authorization might be expanded to permit the funds to be used to pay off the bonds issued to build toll roads that could serve as part of the Interstate System, provided that no income from the road is being diverted to purposes other than operating costs and bond amortization.

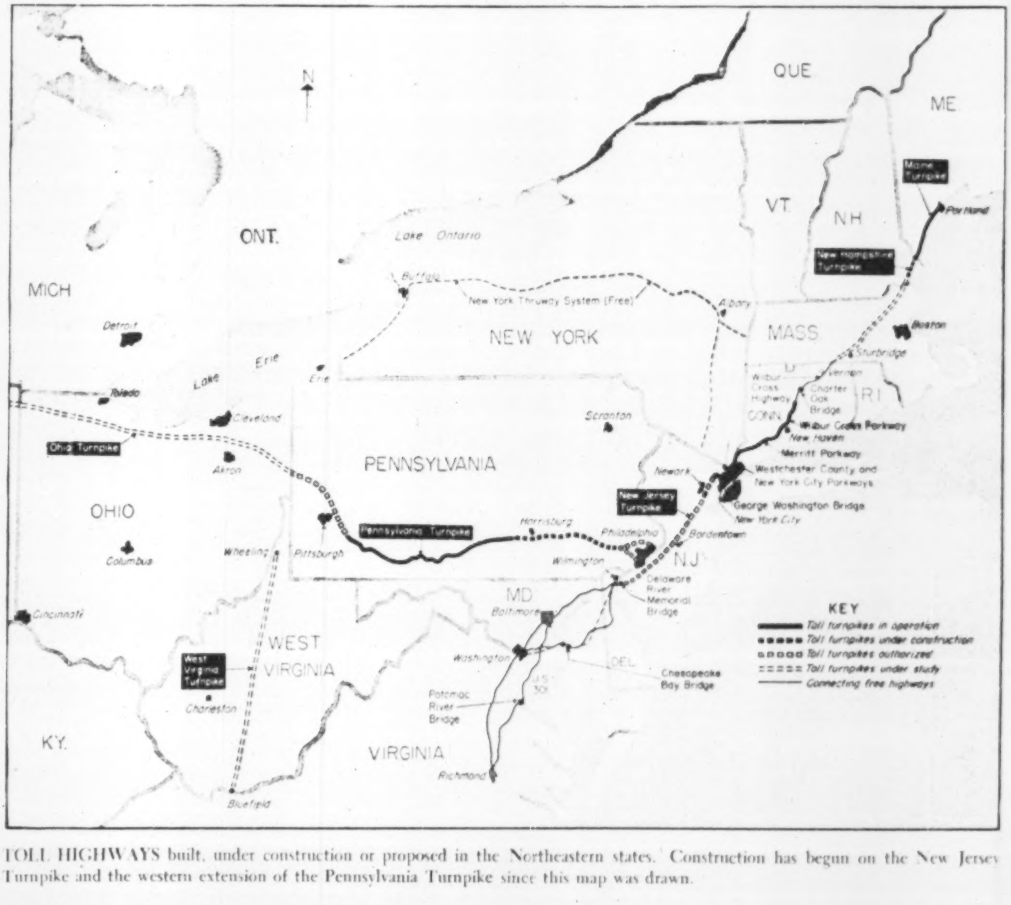
The weakness of the present federal policy with respect to toll roads is that it has not prevented the construction of such roads in the past and will be less likely to stop their construction in the future. Hence the need for reconsideration of the whole matter to see whether a better policy can be formulated. That reconsideration needs to recognize the fact that the roads built to date have served a useful purpose and are so placed that they should ultimately be incorporated in the nation's primary highway system. Because they are so situated they should, logically, be entitled to share in federal aid.

No plan will be perfect. Probably any one put forward will be a compromise—as are the ones outlined above. To be successful, any plan must be made attractive to the states that have resorted to toll-road construction. If making it attractive means acceptance of toll roads as a temporary expedient, that fact should be faced. It would be better to have a few more toll roads during the next decade than to have toll roads with us indefinitely.

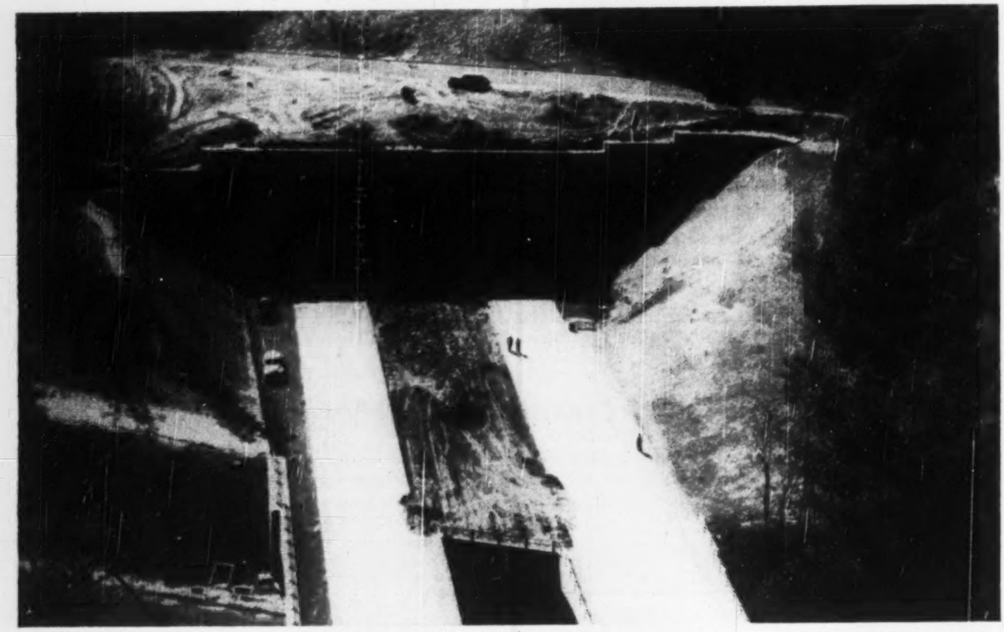
Toll-Road Building Rises Sharply

NEARLY THREE HUNDRED MILES of toll highways are in various stages of construction in this country at the present time. That is about 50 miles more than the total of all roads built since the building of toll roads was revived a little over ten years ago. When the toll roads in various stages of planning are added, the total of existing roads, roads under construction and road projected is close to 1,000 miles.

In the northeastern part of this country the toll highways built or actually under construction are rapidly developing an inter-connected pattern extending from Maine down along the Atlantic Seaboard toward Washington and west across Pennsylvania


QUE
ME
N
Maine Turnpike
Portland
VT.
NH
ONT.
Lake Ontario
New Hampshire Turnpike
MICH
Buffalo
New York Thruway System (Free)
Albany
Boston
Detroit
NEW YORK
MASS
Sturbridge
Lake Erie
Erie
Wilbur Cross Highway
Vernon
Charter Oak Bridge
R.I.
Toledo
Cleveland
Scranton
CONN.
Wilbur Cross Parkway
New Haven
Merritt Parkway
Ohio Turnpike
Akron
PENNSYLVANIA
Newark
Westchester County and New York City Parkways
New Jersey Turnpike
George Washington Bridge
New York City
OHIO
Pittsburgh
Pennsylvania Turnpike
Harrisburg
Philadelphia
Bordentown
Columbus
Wheeling
Wilmington
N.J.
Delaware River Memorial Bridge
MD
Baltimore
Cincinnati
KEY
Toll turnpikes in operation
Toll turnpikes under construction
Toll turnpikes authorized
Toll turnpikes under study
Connecting free highways
WEST VIRGINIA
West Virginia Turnpike
Washington
DEL.
U.S. 301
Chesapeake Bay Bridge
Charleston
Potomac River Bridge
KY.
VIRGINIA
Richmond
Bluefield

TOLL HIGHWAYS built, under construction or proposed in the Northeastern states. Construction has begun on the New Jersey Turnpike and the western extension of the Pennsylvania Turnpike since this map was drawn.



TWIN TUNNELS that carry Wilbur Cross Parkway under West Rock near New Haven on Connecticut's newest toll parkway.

to Ohio, as shown on the accompanying map. There are missing links in the system in that map, and the sections across part of Connecticut and the southeastern tip of New York are toll parkways from which trucks are excluded.

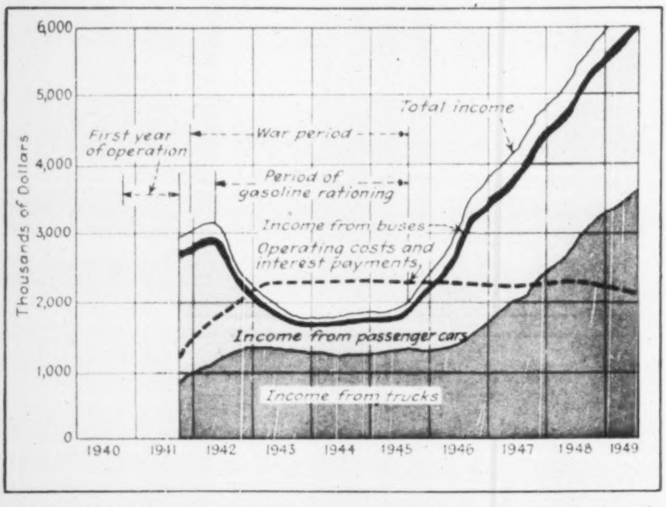
Revival of toll collection as a means for financing road building began with the imposition of a 10-cent toll on the Merritt Parkway in Connecticut in June, 1939, but the toll-road movement received its major impetus from the Pennsylvania Turnpike, which demonstrated that truck operators as well as passenger car owners are willing to pay a substantial fee for use of a highway that provides savings in time and operating costs.

The Pennsylvania Turnpike operated in the red during the war years, but traffic began to rise as soon as war restrictions were lifted and has increased steadily since then, especially long-distance truck movements. It now is operating at a profit.

Connecticut's Merritt Parkway and the first section of the Wilbur Cross Parkway paid so well that very little money had to be borrowed by the state to build the extension of the latter parkway past New Haven that was opened last fall. Westchester County, New York, which followed the lead of Connecticut by imposing 10-cent tolls on its parkways, has had a similar successful experience. The county has about completed repayment of the federal funds it accepted before deciding to charge tolls, and is paying off the bonds issued to build the parkways.

A sharp upswing in toll-road planning and construction followed the war, fostered in large measure by the widespread publicity given to the Pennsylvania Turnpike and by the inability of most states to reduce their accumulated deficit of road work at the desired rate by normal means of financing.

Maine led off with the start of actual construction of a toll highway from Portland to the New Hampshire line, a project that had been authorized when war stopped most highway building. Connecticut resumed work on the Wilbur Cross Parkway, and



INCOME FROM THE PENNSYLVANIA TURNPIKE has risen sharply since the war. It will be well over requirements when bond retirement begins in 1952.

Pennsylvania began to plan east and west extensions of its turnpike to provide a through highway from the outskirts of Philadelphia to the Ohio line.

More recently New Hampshire authorized construction of toll highway that will have the effect of extending the Maine Turnpike to the Massachusetts state line. It was followed by New Jersey, which in October, 1948, authorized construction of the most costly toll road yet projected, a 118-mile highway running through almost the entire length of the state and estimated to cost $220,000,000.

Farther west, Oklahoma has authorized construction of a toll highway from Tulsa to Oklahoma City, and Colorado expects to start soon on a toll highway from Denver to Boulder. Less definite planning is under way in Ohio and West Virginia. Since the new year opened, legislating to set up toll turnpike authorities has been introduced in the legislatures of Georgia and Kentucky.

Additional details concerning the toll-road projects in all states where toll roads have been built or where toll-highway agencies have been set up are given in the following:

Status of state plans

Maine set up the Maine Turnpike Authority in April 1941, and early in 1946, following the sale of $15,000,000 in revenue bonds, it began construction of a 44-mile highway parallel to the coast from Kittery, on the Maine-New Hampshire boundary, to the outskirts of the city of Portland. This highway was opened Dec. 13, 1947, having been built at a total cost of $20,600,000.

For the ten-month period ending in October of last year, total traffic had increased from 1,349,440 vehicles for the same months in 1948 to 1,472,061, and net income from tolls had increased from $562,094 to $730,524. During the year the toll rate for passenger cars was increased from 50 cents to 60 cents. Toll rates for trucks range from 60 cents for light trucks up to 7,000 lb (gross vehicle weight) to $1.50 for the heaviest (50,000 lb). Bus rates are $1.00 and $1.50.

The Maine Turnpike Authority is authorized to continue the highway across the state to the Canadian border, and it may pledge income from the existing toll road in excess of current bond requirements toward support of bonds issued to build the extensions.

New Hampshire is now building a toll highway across the 15-mile wide seacoast section of the state from a connection with the Maine Turnpike at the Maine-New Hampshire border to the Massachusetts line. This road is being built by the state highway department, and is financed by revenue bond issues totaling $7,800,000, authorized by an act of the state legislature, which pledged state support for the bonds should the tolls be inadequate.

The New Hampshire Turnpike is expected to be opened by June 1, 1950, in order to catch the summer tourist travel to Maine. No decision has yet been made as to toll rates.

Massachusetts has no turnpike authority and no definite plans for building toll highways. However, during the past year the state legislature set up a special commission to report upon the need for building a limited-access highway across the state from the New Hampshire line to a connection with the Wilbur Cross Highway in Connecticut. It was instructed to determine whether the road should be a toll or free highway.

Meanwhile, to provide for the additional traffic expected to enter Massachusetts south of Sturbridge as a result of the completion of the New Haven by-pass on Connecticut's Wilbur Cross parkway in Connecticut, the Massachusetts Department of Public Works has begun construction of a 4.5-mile addition to the present Mass. Route 15, to connect with Route U. S. 20 near Sturbridge. Existing traffic hazards are also being corrected on Route 15.

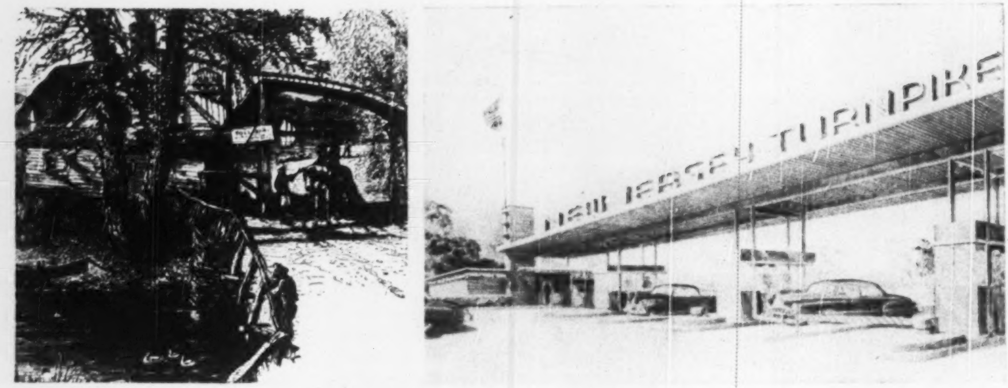
Within the past few weeks the commission set up by the legislature reported against the proposal to collect tolls on a limited-access highway across the state.

Connecticut, on Nov. 1, 1949, opened a new section of the Wilbur Cross Parkway, which now gives the state a toll parkway extending from the New York state line to a point about midway between New Haven and Hartford. From that point north to Vernon it has rebuilt existing highways or has built new divided highways, including a toll bridge over the Connecticut River at Hartford, and it plans to continue this work as far as the Massachusetts line. Except for the toll bridge, this is a free road, open to all traffic. Commercial traffic is excluded from the Wilbur Cross and Merritt parkways.

The 38-mile Merritt Parkway was started in 1934 and completed in September, 1940. It was financed by $15,000,000 of Fairfield County bonds, which are a direct charge against the state's highway income, and a grant of $6,000,000 from the PWA funds. A 10-cent toll is collected on this parkway and on the Wilbur Cross Parkway. The latter is 29 miles long and was financed by tolls from the Merritt Parkway and by $5,135,000 from the state motor vehicle fund. It cost about $17,000,000.

Under the statute authorizing the collection of tolls and setting up the Wilbur Cross Parkway fund, the tolls can be used to create a fund for further extensions of this parkway. Toll collections are used to pay off the

THE EASTERN EXTENSION of the Pennsylvania Turnpike toward Philadelphia requires construction of a new bridge over the Susquehanna River



THE OLD AND NEW in toll collecting facilities are shown in this comparison of a toll gate on the old Newburgh Turnpike along the Hudson River in use a century or more ago and one now proposed for the New Jersey Turnpike.

Fairfield County and state bonds and to carry the cost of collecting tolls, but maintenance costs on the parkways are taken out of the highway fund. Collection of tolls on the existing parkways may be continued until the cost of future extensions is met.

New York has a similar system of parkways extending from the Connecticut line to the George Washington Bridge, made up of the Cross County, Hutchinson River, Sawmill River and Henry Hudson parkways, with a 10-cent toll collected on all but the first. These were built principally by Westchester County and the New York City Park Department.

The Westchester County parkways grossed $2,038,000 in 1949, an increase of 17 percent over 1948. After payment of operating costs of $325,000, bond interest and an installment on refunds to the federal government for WPA aid when the parkways were free, the county had a net of about $600,000. Bonds aggregating $4,184,000 were paid off during the year.

New York now has an agency to build a toll highway. A bill was signed last week authorizing appointment of a Thruway Authority. The legislature also approved a constitutional amendment placing the state's credit behind bonds issued by the Authority to finance the road. The bonds would be backed by the state but the Governor proposes to sell licenses to use the thruways as a means for financing the bond issue. As now planned, the thruways were to be free roads. Only a few miles of the highway have been completed.

New Jersey's proposed turnpike, under present plans, will have its northern terminus in New Jersey Route 6, a main highway leading to the George Washington bridge (ENR, Oct. 27, 1949, p. 36). From there the turnpike extends in a southwesterly direction through almost the entire length of the state to the Delaware River Memorial Bridge, now being built as a toll structure connecting New Jersey and Delaware below Philadelphia. (ENR, Jan. 19, p. 36). It will be 118 miles long and it is estimated to cost $220,000,000.

This turnpike is to be built by the New Jersey Turnpike Authority, which was set up by the state legislature in 1948 as a part of the state highway department and was authorized to "construct, maintain, repair and operate" such toll turnpikes as are approved by the legislature. Its bonds are secured only by tolls and other revenues from the turnpikes it builds.

Preliminary plans for the turnpike were completed in October of last year and it was hoped to let the initial construction contracts before the end of 1949, with completion of the entire project set for the fall of 1951. However, negotiations for the sale of $220,000,000 of turnpike authority bonds were not completed until the middle of February, hence the letting of construction contracts has just begun.

The act setting up the New Jersey Turnpike Authority states that the projects it builds shall become part of the state highway system free of tolls when the bonds are paid off, but there is a qualifying clause which provides that the authority may continue to charge tolls and pledge them to the support of bonds issued in connection with other turnpike projects.

Tolls set up in the engineers' estimates of income were $1 for passenger cars on the 90-mile section south of New Brunswick and $1 on the 28-mile section north of that city, with a maximum of $1.75 for a trip over the entire 118-mile length. Similarly, tolls for a 3-axle truck were set at $1.80 south of New Brunswick and $2.20 on the 28-mile northern section. The maximum toll for semi-trailers was estimated at $4.50. Actual tolls to be charged will not be fixed until the final costs have been determined.

Delaware is building the toll bridge across the Delaware River near Wilmington, with which the projected New Jersey Turnpike will connect. That state, however, has no law permitting the construction of toll highways.

Maryland is building a toll bridge over Chesapeake Bay on a projected free superhighway that will by-pass Baltimore. Contracts for sections of this highway between the bridge and Washington have been let. It will connect with U. S. 301, which provides a by-pass for Washington by way of the new Potomac River Bridge, a toll structure on the route to Richmond.

Pennsylvania set up its Turnpike Commission in May, 1937, and construction of the present 160-mile turnpike was begun in October, 1938. That work was financed by a grant of $29,250,000 from the PWA and by $40,800,000 of the commission's bonds, secured only by tolls on the highway. That project was opened to traffic Oct. 1, 1940. All operating and maintenance costs are paid by the commission.

The project operated in the red during the war years and bond issue was increased to $45,086,000 of 2½%

bonds due 1976. Recently these bonds were refunded by an issue of $47,000,000 of 2¼% bonds due serially 1952 to 1968.

Since war restrictions were lifted, traffic has increased steadily on the turnpike and the current income is more than adequate to cover all operating, interest and amortization charges.

The commission now is building a 100-mile eastern extension of the Pennsylvania Turnpike from the present terminus west of Harrisburg to a point near Norristown in the Philadelphia suburban area. That work is being financed with $87,000,000 of revenue bonds issued by the commission. These are 3¼% term bonds due in 1988.

It is expected that this easterly extension will be open for traffic in December, 1950.

A 31-mile loop to carry traffic to the north or south of Philadelphia has been planned but construction on it cannot start until two years after the completion of the westerly extension of the turnpike.

No definite plans for a connection between the eastern end of the Pennsylvania Turnpike and the proposed New Jersey Turnpike have been made. A suggested link would be an extension of the northern end of the Philadelphia loop across the Delaware to a point near Bordentown on the New Jersey Turnpike.

The Western extension of the Pennsylvania Turnpike to the Ohio state line has been authorized and $77,500,000 of 2.9% term bonds due in 1988 were sold in September to finance the work. Construction on this 67-mile extension was started late in 1949 and it is hoped to have it ready to open for traffic in December, 1951.

Extending of the Pennsylvania Turnpike to Scranton and to Erie has been approved by the Pennsylvania legislature, but no action can be taken on such proposals until after construction of the present Philadelphia and Western extensions are completed.

The passenger car toll on the existing 160-mile Pennsylvania Turnpike is $1.50, and it is expected that the toll for the entire 327 miles will be around $3. The rate for trucks on the existing highway ranges from $1.50 for light pick-up trucks to $10 for the heaviest truck and trailer combinations. Rates for the longer highway will be about double these amounts.

Ohio set up the Ohio Turnpike Commission during the latter part of 1949 and authorized the commission to study and report on several proposed routes for toll highways. Initially, the commission is studying a route from the end of the western extension of the Pennsylvania Turnpike across the northern part of the state to the Ohio-Indiana state line in the general direction of Chicago, a distance of about 240 miles.

The act setting up the commission authorized the director of highways who is an ex-officio member of the commission, to use available funds and staff to make the preliminary engineering studies that must be made before bonds can be sold, or to employ consultants for that work. Late in 1949 the commission asked for a loan of $600,000 for this purpose, but the loan has not been made as state fiscal officers have challenged the legality of that transfer in order to test the constitutionality of the turnpike act.

Other toll-road plans

West Virginia authorized the creation of a West Virginia Turnpike Commission in 1947, but the commission was not organized until late in 1949. The State Road Commissioner is a member, ex-officio, and the State Road Commission is authorized to advance funds to the turnpike commission for employment of consulting engineers and traffic experts or it may use its staff to make studies of proposed turnpikes.

At present the commission has selected tentatively for study a direct route from Wheeling, in the northern part of the state to Bluefield on the southern border, an air line distance of 180 miles. By existing highways it is 300 miles between these two cities.

The turnpike commission is authorized to finance and build such toll turnpike projects as are approved by the State Road Commission but it may not pledge the "faith and credit" of the state to suport its bonds. They are to be secured only by tolls and revenues from the turnpikes.

After the bonds for any project have been paid off, collection of tolls may be continued and the income pledged to support bonds for other toll turnpikes.

Oklahoma passed a bill in 1947 authorizing the construction of a toll highway from Oklahoma City to Tulsa, and a turnpike authority was appointed by the governor in that year. After preliminary plans and traffic estimates had been prepared, efforts were made to interest private capital in the project. Apparently these were unsuccessful, and an application was made to the Reconstruction Finance Corporation for a loan of about $35,000,000 to finance the project. The RFC asked for a new traffic study and report, and following receipt of that report is reported recently to have agreed to buy the turnpike authority's bonds.

Colorado expects to start work soon on a toll highway from Denver to Boulder, a distance of about 22 miles. An enabling act passed in 1949 is now being tested as to its constitutionality. That act did not set up a separate turnpike authority but enlarged the powers of the State Highway Department, authorizing it to build toll turnpikes through unincorporated territory. The act also authorizes the department to supply up to 30 percent of the money required in any one year for payment of bond interest and principal if the revenue from tolls is inadequate.

A preliminary engineering report on the turnpike has been completed by consultants. It put the cost of the proposed turnpike at $5,750,000. Toll rates used in the estimates were 25c for passenger vehicles and 40c for the heaviest trucks.

North Carolina's General Assembly, in 1949, passed an act to authorize the organization of municipal corporations for the purpose of constructing and operating toll roads. It is merely enabling legislation authorizing and empowering a municipal corporation to acquire rights-of-way, own and operate a toll highway in the state.

The act further provides that in the event the State Highway and Public Works Commission shall determine to acquire any such toll road constructed by a municipal corporation, it shall have the right to do so upon payment or assumption of outstanding bonds. Then the corporation's title shall cease and the road shall become part of the state highway system, operating as a toll highway or a free road as the commission may determine.

No municipal corporation has undertaken to build a toll highway under this act.

A few weeks ago Governor Kerr Scott appointed a committee to study the possibility of building a toll road across the state from near Gastonia in a northeasterly direction past Salisbury, High Point, Greensboro and Durham.

Florida opened the 33-mile Overseas Highway to Key West in March, 1938, as a toll highway. It has more the character of a toll bridge than a toll highway, being made up in large part of the long concrete viaducts of the abandoned line of the Florida East Coast Ry. across the open water between the Florida Keys. The highway cost $7,400,000, of which $3,600,000 was a PWA loan. Passenger car tolls are $1.00 pus 25c for each additional passenger.

How To Put Across

A Sound Program for Sewage Treatment:

- **Get your civic leaders into the picture at the start**
- **Get all the facts on needs, benefits and financing**
- **Present a complete program**
- **Tell the public about it**

WHEN IT COMES to putting a pressing problems into sharp focus, a citizens' committee of Youngstown, Ohio, deserves a group citation. They've produced a wise and workable program for making sewage treatment a reality, and the public is accepting it.

Suggested by the Chamber of Commerce and approved by the City Council, the committee was made up of representatives of labor, the Chamber, industry, merchants' associations, newspapers and the city administration. These laymen dug into the financial, legal and engineering facts—with the help of experts—and came up with a step-by-step procedure for getting badly needed treatment facilities. And it's good enough to be followed—with local adaptations—by other cities.

The cooperative study looked into four phases of the problem: Importance and necessity of the project; community cooperation; basic financing methods; and recommendation of a specific program.

• Treatment required—At the outset, the committee inquired into need, desirability and legal compulsion for the project.

The group found that: "Youngstown is now required by law to proceed without undue delay to eliminate or abate pollution which it contributes to the Mahoning River." The requirements of the Ohio River Valley Water Sanitation Compact and a recently enacted Ohio law prohibiting discharge of untreated sewage and industrial waste back up the finding of need.

Other reasons marshalled by the committee to support sewage treatment include:

1. Abatement of its pollution strengthens Youngstown's position in demanding similar action by other cities—higher on the watershed. This is a prelude to getting contamination- and odor-free river water at Youngstown.

2. A moral obligation to treat sewage and industrial wastes before discharge so that the sole water supplies of cities below it are not contaminated.

3. The necessity of collecting and treating the discharge from about 25 outlets before the Mahoning River can be canalized.

4. Further development of river control—a necessity for industrial development—depends in large part on new sewage projects. This is because economic benefits on federal work must exceed construction costs. And increased flow resulting from such works will no longer be considered as saving money in sewage treatment by providing dilution.

5. The advantage of having clean water for existing industries as well as for attracting new plants.

• Cooperation—In the committee's opinion, Youngstown should enlist cooperation of all cities as well as industries in the valley to harmonize and make equitable all pollution abatement in the region. Development of cooperative programs, they say, should be a "condition precedent to or concurrent with enactment of sewer-service charges or issuance of bonds."

Specific actions by city officials to get this essential cooperation should include meeting with representatives of all other communities in the region and with industrial leaders to work out a coordinated concurrent program of stream cleanup. But "inaction by any community," the committee declares, "is not to be construed as justification for Youngstown delaying its improvement."

As a guide to action, general objectives of such conferences are outlined:

1. Establishment of the principle that the public should not bear the burden of providing plants and feeder systems to process wastes from private industry. Large industries, they suggest, will find it practical and desirable to construct their own treatment facilities.

If certain wastes are pre-treatable before entering sewers, they may be handled by the public plant. Charges for this service should include not only processing costs but also an increase to defray the extra capital outlay needed. This applies only to industrial wastes. Sanitary sewage contributed by an industry is expected.

2. If industry elects to handle its own product wastes, the committee recommends that public and private programs be coordinated to give companies sufficient time for orderly progress. This will permit both parties to take advantage of economies resulting from favorable economic development and spaced construction.

• Getting the money—The committee appraised four methods for financing public works:

I An issue of general obligation bonds;

II An issue of mortgage-revenue bonds;

III A combination of methods I and II; and

IV Utilization of the "pay-as-you-go" principle for the lesser portion of the cost combined with issuance of mortgage-revenue bonds for the major outlay. This means application of sewer-service charging at the outset and deferment of bonds for constructing the main plant and auxiliary works.

Method IV was selected because it will:

1. Reduce amount of money to be raised by sale of bonds. This will accordingly decrease the cost of annual debt service and minimize sewer-service charges.

2. Provide funds on which the city is not required to pay interest—to the extent time and practical considerations will permit—to cover costs of: Engineering expenses; land and right-of-way costs; rehabilitation and redesign of sewers; and partial construction of at least new interceptors for carrying wastes to the new plant.

3. Avoid a large unexpended balance in a bond construction fund carried at a net interest loss.

4. Permit orderly development of the overall project—without city officials being pressured by existence of funds under 3.

5. Build up experience in collecting sewer-service charges. This will establish if the revenue bonds can be properly paid off by receipts collected. This is important, the committee points out, because investment men agree that a sound record of collection will command a more favorable rate of interest in floating mortgage-

revenue bonds than an estimate of anticipated income.

6. Permit a more realistic determination of the amount of the bond issue. This stems from these facts: Contract bids can be obtained or close estimates of total cost are possible when the construction industry is settled and there is a narrow gap between borrowing operations and commencement of construction. The essence of this thought, concludes the committee, is that the city should try to avoid over- or under-borrowing.

Because financing methods I, II, and III did not have one or more of these advantages, they were rejected.

• Ideas into action—To make best use of Method IV, the committee marked out seven procedural steps for the sewage program:

STEP I—Get a report on utility rates. The city council should engage a consulting engineer to work with the city engineer in preparing a formal report setting forth:

A REVISED ESTIMATE of construction cost—detailing component units—as well as of operation and maintenance of facilities described in the engineer's preliminary report on the project; THE AMOUNT necessary to be raised annually; and the project-paying SEWER-SERVICE CHARGE.

These findings should be presented so that the council and the public can easily compare the total amounts required under: immediate issuance of bonds retireable in 25 and 30 yrs; and deferred issuance of bonds at 12, 18, 24, 30 and 36-month intervals after charge collection is started.

In outlining what the financial report should cover, the committee points out that "the engineers should be instructed to consider all foreseeable contingencies in computing the estimated service charge so that future revision of rates will be downward and not upward." They also endorse a contract—separate from other engineering services—for this report.

STEP II—Tell the story. After the financial report has been reviewed, the committee recommends that city officials prepare a formal statement of facts on the pollution-abatement program. This should acquaint the people of Youngstown, they state, with the "necessity, civil and economic benefits and cost involved, in providing sewage-disposal facilities."

Then the committee underscores the importance of good public relations: "Every effort should be made to see that this statement is distributed to all civic, business and labor groups and given widespread publicity through the press and radio." They further suggest that a voluntary qualified-speakers group be organized and their services made available to all groups desiring information on the sewage program. Under the auspices of the city, this work could best be coordinated and directed by the city engineer, they say.

STEP III—Collect sewer-service charges. The committee recommends that—immediately after the council decides to proceed with the work—it should set up and order collection of sewer-service charges. This recommendation stems from the fact the sale of mortgage-revenue bonds will probably command a lower rate of interest with a record of actual collections.

Charges should be determined on the basis of the consultant's report and be fair and equitable to each type of user. They should also represent a fair compromise between too high a current charge and a reasonable bond-retirement period—not to exceed 25 or 30 yrs. "While it may seem superfluous, the committee emphasizes, the money so collected should be earmarked for this project alone."

Because charges will probably be a percentage of water bills, the water department—organized for collection—should handle them. This is desirable even though supervision and operation of the plant is the legal responsibility of the city engineer.

STEP IV—Retain a consulting engineer for design. When funds are available from collections, the project has carried the support of the people and the way is clear legally, the board of control should be given authority to hire a consulting engineer recommended by the city engineer. The consultant should be directed to prepare detailed plans and specifications necessary for bid taking and obtaining approval of the state health department.

The plans should be drawn so that construction can be staged in accordance with funds received from current collection.

Certain phases—rehabilitation of sewers and design and construction of new interceptors—probably can be handled by the city engineer's forces at a saving in fees, they indicate.

STEP V—Constructing in stages. When sufficient money has been collected to pay for one stage, it is suggested that authority be given to proceed at once with such work.

STEP VI—Retain bond counsel. As pay-as-you-go work approaches completion, the next step involves use of borrowed money. Then it is proposed that a competent bond counsel be retained by the board of control. His important services include: Rendering opinions of legality of actions taken; and the careful drafting of covenants in the bond indenture to set forth obligations and duties of the city as well as the bondholders' security provision and their rights in event of default. These actions influence decidedly salability of bonds at an attractive price and must be carried cooperatively among the consulting engineer, bond counsel and city officials.

The committee then hangs up a warning sign: The bond counsel must be engaged on an independent basis. He must not be accepted on the basis that he can only act in conjunction with the investment dealer or a syndicate.

STEP VII—Competitive bidding for bonds. Mortgage-revenue bonds, insists the committee, must be sold at public auction with competitive bidding because:

1. The city will be assured of the lowest possible interest rate under competitive bidding.

2. Investment-banking competition gives good assurance that the city will get sharply trimmed bids.

3. The needs and paying ability of the city should be emphasized, rather than making the issue unusually attractive by emphasizing ease and profit possibilities in marketing.

4. There is no justification for the city to give the investment firm approval power over selection of the engineer or bond counsel.

5. Investor service agencies can be satisfied with an official statement by the city's director of finance.

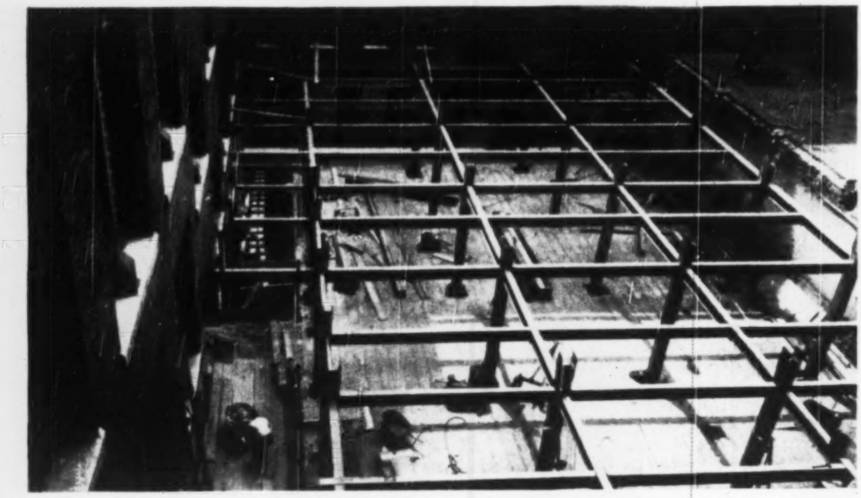
6. Investment bankers will sound out large investors on rate and terms of the issue to help them formulate their bid.

7. State law requires general-obligation bonds to be sold at competitive bidding, and this experience suggests that mortgage revenues should be sold on the same basis as good public policy.

8. Competitive bidding will forestall reflections on the integrity and good faith of participants in the action.

• Committee personnel—The Citizens' Committee was staffed with the following men: AFL's Charles Bowdich; the C of C's A. I. Kidston, Frank Mouery, F. B. Powers, and Frank Waterman; newspaperman George Madtes; the Mahoning Valley Industrial Council's W. D. Skinner and John Stouffer; the South Side Merchants and Civic Assn's. L. F. Donnell and Carl Gluck; and J. F. Cossler and W. C. Lyden of the Greater Youngstown Area Foundation. Nonvoting members were: Harry Jacobs and Anthony Flask of the city council; H. H. Hunt and James Ryan representing the city administration; and F. W. Barton of the Chamber of Commerce.

Adding space to Hennepin County Court House was a problem. Solution was . . .



Building a Building Inside a Building

Paul Andersen

Consulting Engineer, Long & Thorshov, Inc., Minneapolis, Minnesota

Higher Productivity
Lower Costs

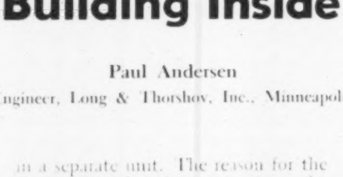
How would you add office space to a building when there's no room around it and you can't increase its height?

It's not easy, but it can be done. You can, for example, solve the problem as did the architects for the 50-yr old Hennepin County Court House in Minneapolis—by erecting a structure wholly inside the existing building.

The courthouse, 307 ft square, covers a city block in the downtown section. About one-sixth its area is occupied by an interior one-story court, which has a basement under it.

When the county found expansion necessary, it decided to erect the addition in the court area because: (1) With all personnel in one building, communication between departments would be simple and quick; (2) cost of additional property within reasonable distance would have been high, and full use was not being made of the court space; and (3) cost of heating the addition, which has only one exterior wall (Fig. 1) would be less than 75% of the cost for heating the same space in a separate unit. The reason for the outer wall is that the county shares the building with the city and hence built the addition only in its portion of the court area.

• **Separate footings cast**—To avoid trouble due to unequal settlement of new and old foundations, the designers considered it wise to support the new building independently of the existing frame and footings. They called for reinforced concrete spread footings to carry the structural steel frame, with cantilevers to support the portions of the new structure adjacent to the old.



STEEL DECKING and vermiculite plaster cut weight of floor construction.

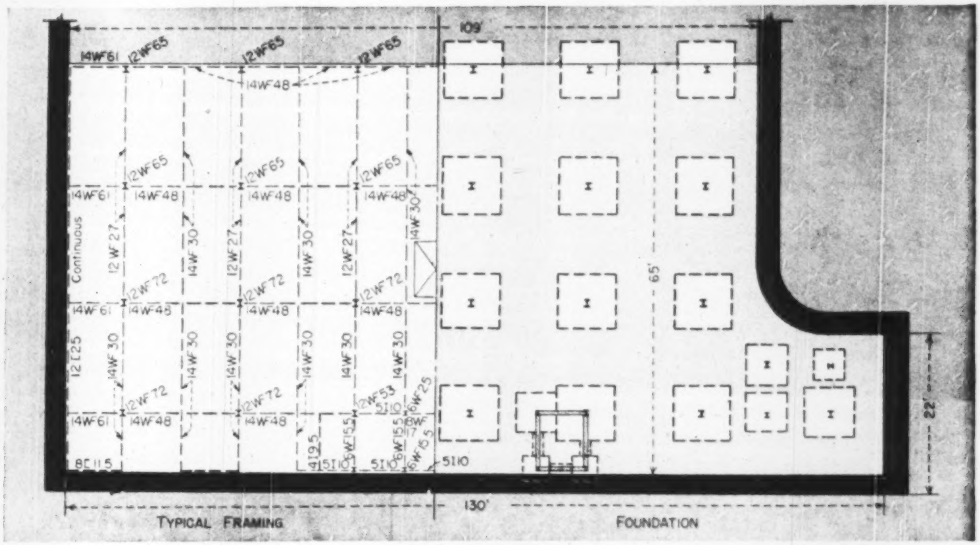
Footings were designed for a bearing pressure of only 2,500 psf, although they rest on coarse sand, which generally is considered good for 8,000 psf. This was done to reduce settlement to a minimum. The designers considered ½ in. the maximum permissible, if the relative position of the floor levels of the two buildings was to be maintained.

Where columns for two elevators had to be placed close to the existing bearing wall, footings could not be constructed without disturbing the wall's foundations. Hence, it had to be underpinned while the footings were built under it.

• **Height increase planned**—The new building is seven stories high, including two stories for elevator penthouses and machine rooms. The designers, however, provided for future extension to ten stories.

Despite the height of the structure, they did not make a wind-stress analysis. They considered wind forces negligible because the existing building shelters the addition.

• **Floor design saves weight**—The struc-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8[11.5
65'
22'
130'
TYPICAL FRAMING
FOUNDATION

STEEL FRAMING is supported on spread concrete footings, kept away from the existing building wall, where possible.

ture was designed for 125 psf of floor area, but despite this high live load, the floor and suspended ceiling weigh only 57 psf. Weight was saved by using cellular, steel floor decking topped with 2½ in. of concrete and by fireproofing the steel beams and underside of decking with ¾ in. of vermiculite plaster on metal lath. Fire protection for the columns is conventional clay tile.

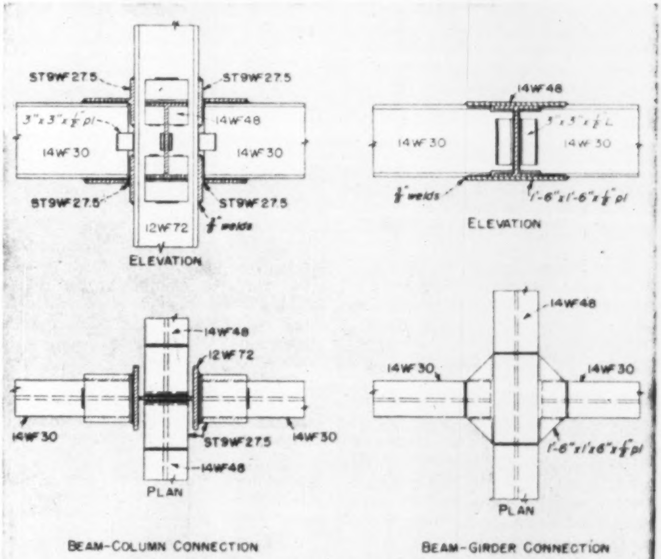
The heavy loading on the cantilevers, which are 9 ft long, produces relatively large deflections of these members. Hence, the cantilevers were cambered upward to compensate for this effect.

• **Frame bolted and welded**—To reduce construction noises, the designers decided to avoid field riveting of connections. They then had to choose between bolting or welding, finding the former less expensive and the latter more reliable for moment connections.

In the final design, they called for welded connections to all exterior columns and bolted connections to all interior columns.

Where cantilever beams are supported at the midspan of girders, moments are transferred by top and bottom plates across the joint. These plates are welded to the flanges of the beams framing into the girders, as well as to the girders (See details at right). Because the steel flooring was welded to the top flange of the girders, no appreciable torsion was introduced in these members.

Construction of Hennepin County Court House was authorized by the County Board of Commissioners, of which George W. Matthews is chairman. Architectural and structural design was by Long and Thorshov, Inc. Kraus-Anderson, Inc., was general contractor.


ST9WF27.5
3"x3"x½" pl
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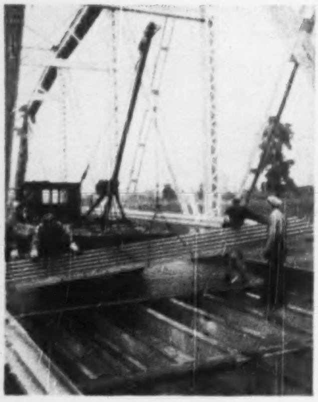
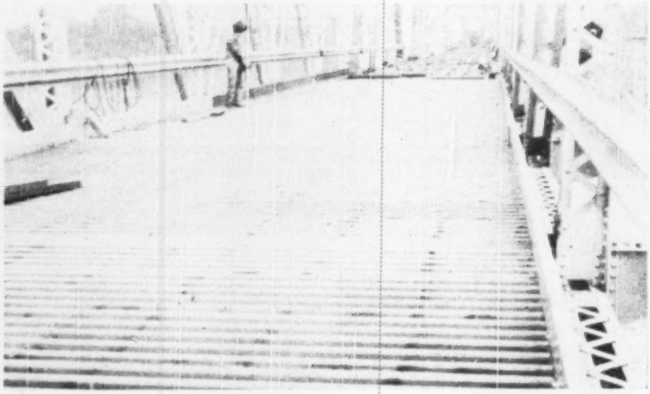
14WF30
12WF72
¼" welds
ELEVATION
PLAN
3"x3"x½" L
1'-6"x1'-6"x½" pl
BEAM-COLUMN CONNECTION
BEAM-GIRDER CONNECTION

MOMENT CONNECTIONS of beams to exterior columns (left) and of cantilevers to girders were made by welding. Interior connections were bolted.



FLOOR PLATES, in 435-lb panels, were placed by truck with boom and hoist.



THE BOX-CORRUGATED steel plates thus replaced old timber decking on the structure. (All photos from United Steel Fabricators, Inc.)

New Life for a 28-year Old Bridge

When Montgomery County (Ohio) engineers decided to refloor one of their big river bridges last fall they wanted to get it done in a hurry. And, since the structural members of the 28-year old truss spans are capable of carrying an H-15 loading, the new flooring had to be at least that strong.

Their final choice was a composite flooring, made up of box-corrugated 10-gage structural plates welded on top of the existing roadway stringers, and surfaced with bituminous asphalt. The new flooring, capable of carrying an H-20 live load, actually decreased the dead loads on the trusses and stiffened up the spans—two main inducements which prompted the county engineers to use it.

The bridge-remodeling job also included removal of an old timber plank sidewalk on cantilevered brackets outside of one line of trusses, and replacement with a new timber sidewalk.

The simplicity of installation of the patented floor plate required a minimum of equipment and labor—thus increasing production on the job, and reducing the costs of installation. Moreover, the completed bridge floor gives smooth riding for the large number of vehicles using it daily and it should last many years, with relatively little maintenance.

Completed job costs for furnishing and installing the flooring—exclusive of two lines of new stringers and roadway curbs—was $1.20 per sq ft, with the asphalt surfacing costing an additional $0.17 per sq ft.

• **Heavy traffic**—The bridge in question is known as the Springboro Pike Bridge, at the foot of South Broadway, just outside of Dayton, Ohio. It crosses the Great Miami River and carries up to 8,000 vehicles per day. Erected in 1921, the bridge consists of three 225-ft curved-chord, through-type Parker truss spans.

Floor beams at truss panel points, 22 ft 6 in. c-c, carry longitudinal steel stringers spaced 2 ft 2 in. c-c. Tops of the stringers are 2 in. below the tops of the floorbeams.

Eight lines of stringers carried the old timber flooring which furnished a 19-ft 10-in. roadway width between guard curbs. Two additional lines of 14-in., 34-lb rolled beam stringers were added just inside of the trusses to carry the ends of the new flooring and the new channel curbs. These 10-in., 20-lb channels were welded to the top flanges of the stringers, and connected to the floor beams with welded clip angles. The roadway width was not increased.

Roadway drainage is furnished by 3½-in. wrought iron downspouts spaced 55 ft apart along both roadway curbs. They were welded to the inside edges of the flanges of the new outside stringers.

• **Large-panel plates**—The corrugated floor plate was fabricated in panels 19 ft 10 in. long by 33 in. wide. Each panel contains five crests and four full valleys. In addition, the edges of the 10-gage plate were turned up 1½-in., forming a narrow valley and a vertical flange. Plates were installed with these flanges butting together, following which, they were welded together with one ⅜-in. bead weld between each pair of stringers. Corrugations are 2 in. deep and spaced 6⅝ in. center to center of crest.

Each 19-ft 10-in. by 33-in. floor panel was made up of one 12-ft stock length butt-welded to a 7-ft 10-in length. The butt-weld on the bottom of the plate was continuous. On the top sides of the plate, however, the weld extended only along the horizontal surface of the valleys and crests. Floor plates received one coat of grey primer paint in the shop.

Each panel was shop-punched with ninety 1¼x¾-in. slots in the valleys—60 for welding the plate to the stringers and 30 for drainage of any moisture seeping through the asphalt surfacing. Welding slots were spotted directly over the stringers, and drainage slots were located midway between alternate pairs of stringers. The floor plates were welded to the stringers with two ⅛x1-in. fillet welds in each welding slot.

Before installation, the 435-lb floor panels were laid bottom-side up, in the open area adjacent to the bridge, and given one coat of aluminum paint on the bottom surface. This speeded the job by eliminating awkward overhead painting after installation.

Installation of the floor panels was started at one end of the bridge, after a few panels of old flooring has been removed, the exposed top flanges of floor beams and stringers cleaned and

HOT-MIX base course was placed in corrugations in floor plate by an asphalt paver. Mix was then . . .

COMPACTED to a ¾ in. depth above the plate by a 10-ton roller. Wearing surface was added, 2¾ in. deep at centerline.

painted, and the two new lines of outside stringers erected.

• Simple Installation—The installation of the floor plate was simple and fast—requiring only 450 man-hours for the actual installation and welding. A flatbed truck, equipped with a 15-ft boom and power hoist, picked up four panels each load, backed out onto previously positioned flooring and lowered them onto the naked stringers. Four men with hand-hooks then placed the panels in final position.

After all eight panels of floor plate had been placed on one truss panel of stringers, each plate was tack-welded to the stringers in nine spots. The welding gang then followed along to complete the welding.

Removal of the old timber flooring required 13 days. Installation of the corrugated flooring, including cleaning and painting the old steel, installation of new stringers and channel curbs, required 28 days. The asphalt wearing surface was applied in 1½ days, making a total of 43 working days for the entire job—17 days ahead of the contract completion date.

• Asphalt surface—There was nothing unusual about placing the hot-mix asphalt surfacing. It was laid in two applications. The base course material—Ohio State Highway Department Type T-35-A—was spread directly on top of the corrugated flooring. It was compacted by a 10-ton roller to a depth of ¾ in. above the top of the floor plate.

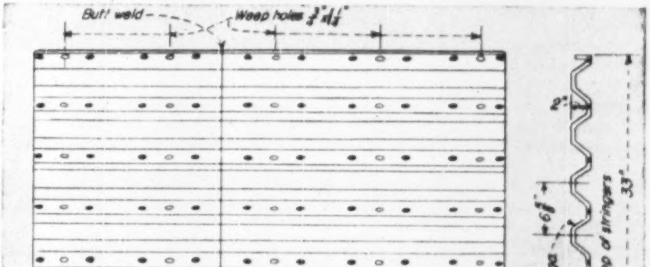
The wearing surface—Type T-35-B—then was applied in a similar manner. It was compacted to a 2¾-in. thickness at the center line of roadway, and feathered off to 1¼ in. thickness at the curb lines, giving a 1½-in. crown for drainage.

The corrugated steel flooring was fabricated by the United Steel Fabricators, Inc., Wooster, Ohio. The Dayton Fabricated Steel Co., Dayton, Ohio, held a $25,570 contract for the removal of the old outside curbs; cleaning and painting the tops of the old steel stringers and floor beams; painting the bottom sides of the floor plates; and the installation of new outside stringers, curb channels and the corrugated steel flooring.

The asphalt surfacing, including 70 cu yd of approach work, was applied by the Boyd & Cook Co., of Dayton, under a $3,410 contract. County forces removed the old timber flooring and sidewalk and performed 235 lin ft of grade reduction work on the approaches to the bridge. They also lowered and remodeled backwalls and installed the new timber sidewalk flooring. The cost of this work was $13,090, making the total cost of the job $42,070.

Preliminary cost comparisons were made on a timber flooring versus the corrugated steel and asphalt floor. Engineers estimated that the cost of furnishing and installing 3x6-in. creosoted pine flooring on 4x6-in. creosoted oak nailing strips would be $41,750. By comparison, the steel plate flooring and asphalt surface cost only $28,980.

• Men in charge — Montgomery County Engineers in charge of the job included: C. H. Bauer, county engineer; C. H. Shea, chief deputy; R. O. Eisenlohr, bridge engineer; and O. O. Bieler, bridge superintendent. A. F. McCallum was resident engineer for the Dayton Fabricated Steel Co.; R. Cook was construction superintendent for the Boyd & Cook Co.



TWO LENGTHS of corrugated plate were butt-welded to form a 19-ft 10-in. x 33-in. panel. Each panel had 90 shop-punched slots—60 for field welding, 30 for weep holes.

READER COMMENT

Precast Bridge Slabs

Sir: I have been reading the item entitled "Rapid Bridge Building" (ENR Dec. 29, 1950 p 17) describing the precast concrete units being used in the State of Washington for slab bridges.

You may be interested to hear of two similar, but prestressed, concrete slab bridges that have recently been constructed for the Highways Department of the Seine-Inferieure district of France.

These two bridges are each formed of fifteen, 42 ft long, 3 ft wide precast concrete slabs, which are only 14 in. deep, and are prestressed by cables anchored at each end with Freyssinet cone anchorages.

The prestressing of the 16 ft x 4 ft Washington slabs would have reduced their thickness from 20 in. to about 7 in. and their weight from 3½ tons to about 1½ ton.

C. C. Stainer
S.T.U.P. (Procedes Freyssinet)
Paris, France

Water: Sell or Conserve

Sir: The article in the Feb. 9 issue (p. 40) "Let's Sell Water," might well be titled, "Let's Sell Water Conservation."

- Conservation specialists—Mr. DeBerard has rightly stated that water use increases even without promotion. It appears that there are few locations in the New York and Metropolitan New Jersey area where water salesmen are required. However, it might well be that men familiar with the conservation or reclamation of water are in demand.

- Industrial conservation—One large brewer in Greater New York has installed equipment—at his own expense and is reclaiming and storing water for re-use. This industry, in Dec., 1949 used about 400,000 gpd. During January his water consumption with re-use was less than 200,000 gpd. Further conservation is being practiced at this plant to get still greater reduction without affecting production. Large steel tanks, sufficient to hold nearly a day's supply of water, are being erected on the roof of the plant. The cost for pumping, piping and erecting will be saved in 18 months by a reduction in water bills.

- Charge for peak use—Mr. Hatcher's discussion recalls that—in one residential community in Northern New Jersey — peak water consumption is often about 8 times the average rate. Needless to say, the distribution system of this particular community is over-taxed. And in spite of a sufficiently large water supply, pressures dropped to a dangerous point in the distribution system, and consumers complained of a water shortage.

Sliding downward scales of water cost might well be revised so that large consumers imposing unusual loads should pay much more for water consumed. This is in opposition to present practice where the large consumer benefits by a lower rate for greater use. It would seem to me that some municipalities facing such a condition might be forced to such a rate structure. However, other municipalities needing industry could not set up such a rate structure.

- Cost Doubled—E. J. Taylor's prophesy, "New Supply Cost May be Doubled," is very timely. Many engineers responsible for planing future water requirements feel that a capital cost of $300,000 per mgd for relatively large supplies is low. Today's price would be more nearly $600,000 per mgd developed.

The North Jersey District Water Supply Commission, developed the Wanaque Reservoir in 1930 at a cost of about $300,000 per mgd developed. This was rated as a 100 mgd supply.

The preliminary study of the Incodel supply would indicate that the cost would probably be about $500,000 per mgd developed. I think it is about time that the water-consuming public in the New York and Metropolitan New Jersey is educated not only to the necessity of additional water, but to the fact that cost of large water projects must be revised upward as difficulties in obtaining these supplies increase.

- The public objects—Mr. Ayres' analysis "Costs Affect A City's Economy," also rings a bell. Development of large supplies in North Jersey has caused public clamor for scalps of those promoting such projects. The public frequently feels that the investment will be unnecessary and wasteful.

In no instances has the history of water supply in Metropolitan New Jersey proven that large supplies—such as the Wanaque Supply for the North Jersey District Water Supply Commission, the Pequannock Supply for the City of Newark, and the Boonton Supply for Jersey City—are unnecessary or wasteful. Development of the Metropolitan New Jersey area would have been stifled had these supplies not been made available.

It would seem that these cities should accumulate reserves to finance other major water supply projects. This is suggested in Malcolm Pirnie's report on the Incodel Project (ENR Feb. 2, p. 25). It may be difficult at first to convince the average citizens that costs of such a project are not prohibitive, but such an educational program should begin at once, and if properly advanced, will bear fruit.

- Water brings in revenue—In general, municipal government has no subdivision which produces as much net revenue as the water department. Most of this revenue should be set aside for future requirements, as in any other well-operated business.

- Engineers spoke out—Water engineers cannot be accused—in the New York and Metropolitan New Jersey area—of not warning the people of the water shortage that now faces them. If we have failed at all, we are not convincing enough in steering municipal officers into setting aside moneys and promoting future major water supplies.

Lee T. Purcell
Consulting Engineer
Paterson, N. J.

Rule for Good Concrete

Sir: Recently a number of people, including some Government Agencies, have spent a great deal of time discussing the question of good quality concrete. This is a subject in which we are vitally interested.

We believe that the use of good quality concrete will lead to its more general use and will make it obvious to builders who are investing their good money in new property, to architects, and to engineers that it is a most satisfactory and economical building material.

A few days ago we read an ad inserted by a ready-mix contractor operating in a neighboring city which so exactly meets our own views on this subject that we have taken the liberty of restating it here:

"Good concrete is made by mixing cement, sand and gravel or stone with water. Poor concrete, oddly enough, is made with the same components. The differences between the two are the intangible things called 'integrity' and 'know how'. Shall we be more concrete?"

E. J. Head
Vice President
Metropolitan Sand & Gravel Corp.
New York City

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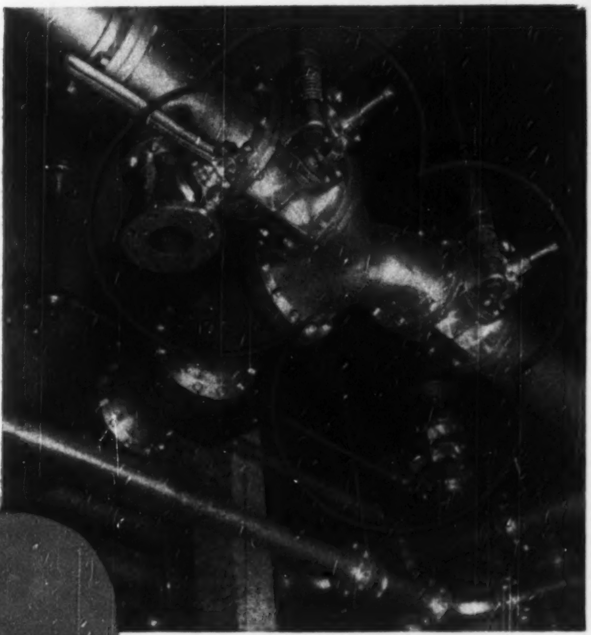
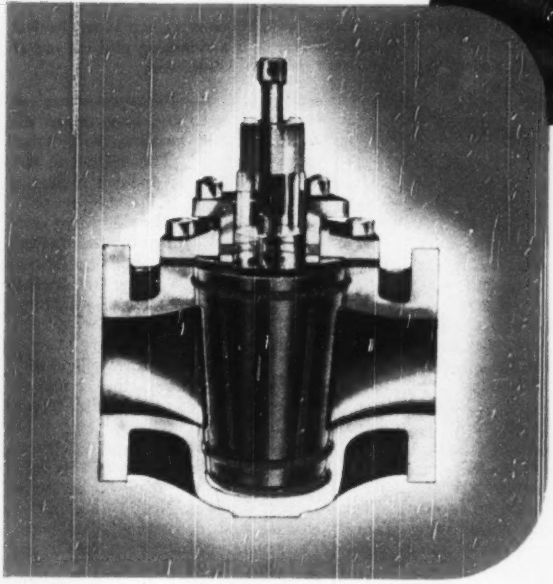


Nordstrom valves on sludge feeders in vacuum filter room



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Nordstrom lubricated valves are recognized by sewage engineers as the *one* type of valve perfectly suited to conditions encountered in sewage treatment. They are widely used on sludge lines, pump suction and discharge, lateral air lines, grit chamber drain lines, gas and water lines.

The tapered plug rotates on a film of pressurized lubricant so that leakage is prevented. The plug can be jacked if it becomes too tight merely by turning the external lubricant screw. The seat is always covered; never exposed. Grit and corrosive contaminants are effectively prevented from contacting the seat. The passageway is flush, with no cavities or crevices. A quarter-turn full opens or closes the valve.

Rockwell *Hypermatic* lubricant (Patents applied for) now give Nordstrom valves *automatic lubrication.* The most outstanding development in 30 years of valve progress. Reduces maintenance costs to a minimum. Ask for Bulletin V-211.

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Business methods that make home building more profitable

YOU'LL save yourself many a headache and many a dollar if you let this new book be your guide. Designed specifically to meet the needs of the small home builder, it gives you the business "know-how" needed to make a profit with minimum risk to your money . . . a practical understanding of economic factors that determine if there is a market for your product . . . and the benefit of production knowledge based upon the experience of other builders. Here are practical, usable facts, not theory. Reflecting the experience of experts in the field, it tells you, in simple terms, all you need to know about the *business* of home building, showing you how to *minimize business errors* and increase your chances for success.

Edited by B. KENNETH JOHNSTONE, Carnegie Institute of Technology, and CHARLES E. JOERN, Wm. Joern & Sons, Realtor and Builder. Contributed to by a group of 12 authorities in the field.

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DEVELOPMENTS ABROAD

NEW BID FOR TOURISTS—The 300-room Caribe Hilton is set in a 14-acre tropical garden in Puerto Rico. One of its special attractions is a swimming pool cut out of solid coral rock with a complete change of salt water every four hours.

Puerto Rico builds hotel to attract tourist trade

To strengthen Puerto Rico's bid for a $25,000,000 annual tourist industry, Caribe Hilton, a luxurious, 300-room hotel, has been built near San Juan, Puerto Rico, at a cost of about $6,500,000. It occupies a 14-acre tract—originally part of historic Fort San Geronimo—that overlooks the Atlantic Ocean and the Condado Lagoon. Every room faces the Gulf Stream, has a private balcony, and is air conditioned.

The building is a reinforced concrete structure 10 stories high, with two side wings two stories high. Floors generally are of metal-pan construction. The structure was designed as a rigid framework, with longitudinal frames resisting mainly the gravity loads, and the transverse frames earthquake and hurricane loads.

Foundations for the 10-story section consist of a reinforced concrete mat with inverted beams. This design was used because the soil is composed of a mixture of fine wet sand and clay, the proportions of each varying in the longitudinal direction of the building, with some rock at one end. The bottom of the foundation mat is under a hydraulic head of about 5 ft.

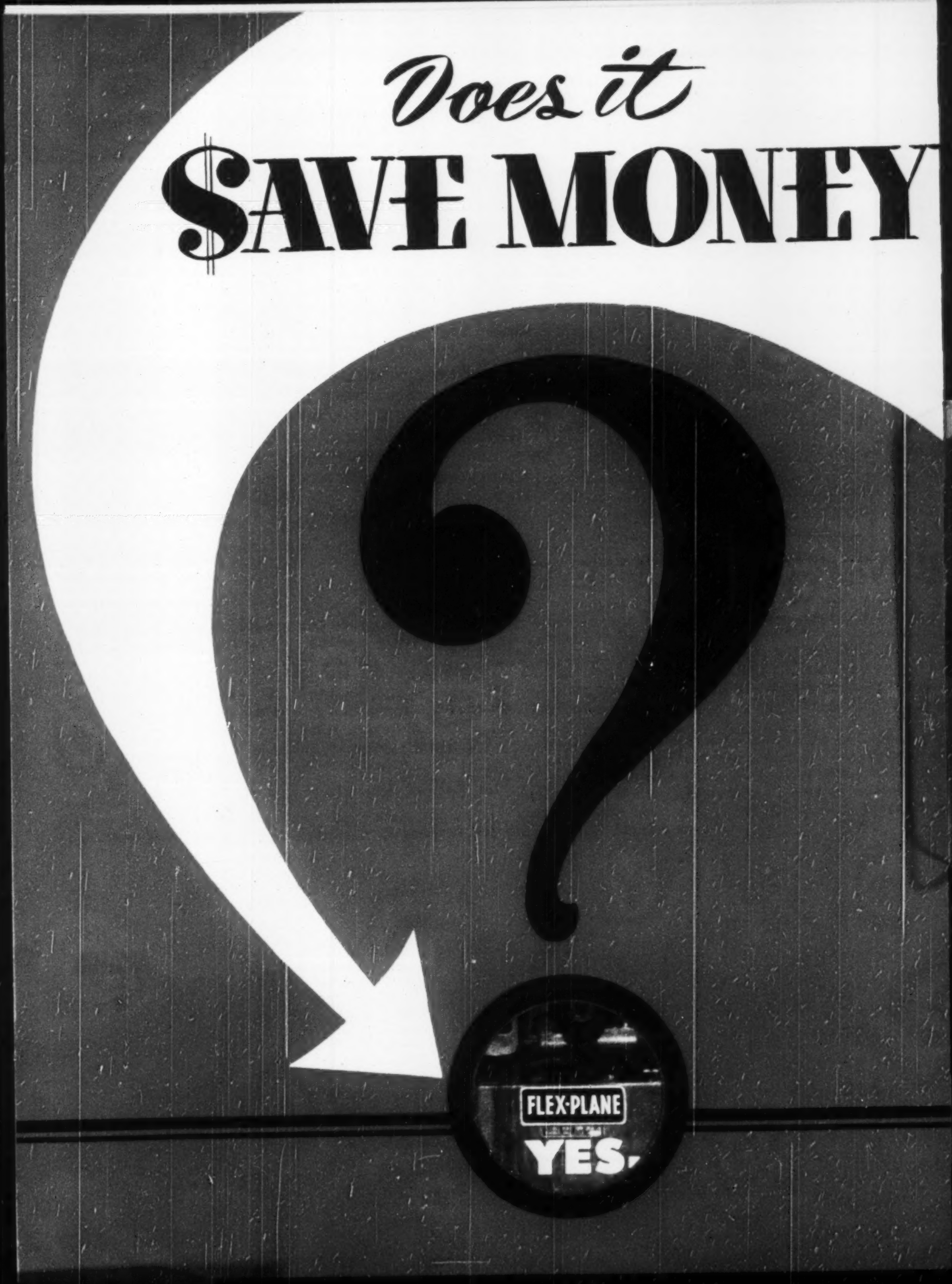
Foundations for the side wings consist of spread footings inter-connected in both directions. Soil conditions under one of the wings are similar to those under the mat foundation. Footings for the other wing rest mostly on bedrock.

Settlement has been very slight and uniform throughout the building. There have been no cracks after several months.

The hotel was designed by Toro, Ferrer & Torregrosa, architects and engineers of Santurce, P. R., with Warner-Leeds of New York as architectural and decorating consultants. The general contractor was the George A. Fuller Co. of New York City.

The Caribe Hilton was built for the Puerto Rico Industrial Development Co., an agency of the Puerto Rican government, and will be operated by Hilton Hotels International.

Bolivian highways—The 15,000 miles of roads that constitute the highway system of Bolivia are mostly primitive because that country lacks a definite highway policy. So reports the Asociacion Boliviana de Carriteras, of the International Road Federation, in a special report to a United Nations mission studying ways to improve the economy of that country. Roads are excessively crowned and curved, are too narrow and poorly drained. All of the roads, except short sections, are impassable or unsafe during the rainy season from November to April. So far no action has been taken to establish a permanent route as Bolivia's part of the Pan American Highway system. A request has been made for a separate study of the highway problem in Bolivia and the assignment of a United Nations technical team to cooperate.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SAVE MONEY
?
FLEX-PLANE
YES.

FLEX-PLANE *Mechanical* BAR INSTALLER

J. R. CHANDLEE, JR.

Throughout the United States contractors have proved that an impressive reduction in costs is achieved through use of the Flex-Plane mechanical bar installer. From job superintendents have come statements verifying the fact that the Flex-Plane method of installation is more accurate and less costly. Four comments are given here.

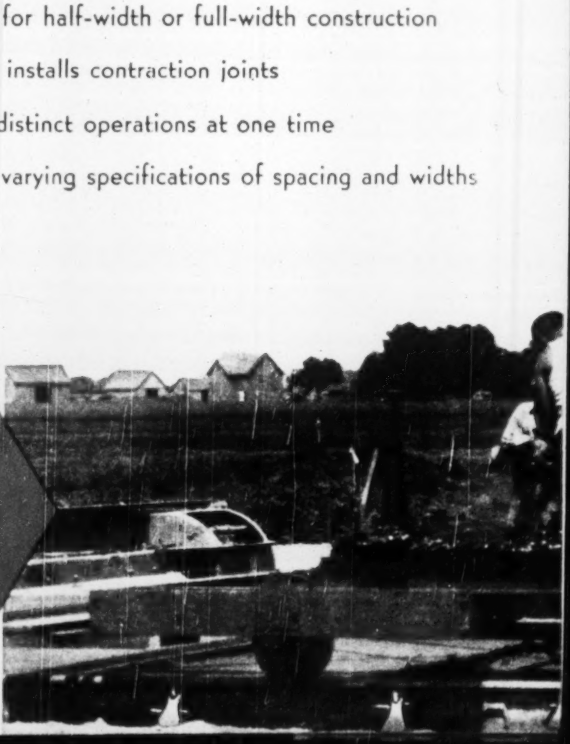
- J. R. Chandlee Jr., Superintendent of Ballinger Paving Company, Greenville, South Carolina. Mr. Chandlee comments: "It is a machine that solves a long-standing problem among concrete paving folks; that is, a mechanical method of economically installing contraction dowels and longitudinal tie-bars in concrete pavement at a positive depth and alignment satisfactory to good construction demands by efficient engineers."

SAVE COSTS ON EVERY JOB . . .

Check These Features

- Eliminates expensive dowel holding devices
- Installs bars more accurately and in better alignment
- Standard sizes for half-width or full-width construction
- Simultaneously installs contraction joints
- Performs four distinct operations at one time
- Adjustable for varying specifications of spacing and widths

An airport job where the Flex-Plane bar installer paid off! Dowels were vibrated to exact position; tie-bars were installed simultaneously; transverse joint was formed and longitudinal joint was cut and installed—all in one operation.



SAVED COSTS FOR THESE CONTRACTORS

JAMES A. BOLLINGER

- James A. Bollinger, Superintendent for J. Briscoe, Contractor, Stillwater, Oklahoma, gives an unqualified "Yes." They were completely satisfied with the value of the Flex-Plane mechanical bar installing machine. This contractor used the machine on a second job after the initial test proved its success.

- F. E. Fieweger, Vice-president of Central Engineering Company, Davenport, Iowa: "The dowel placing machine eliminates the use of dowel bar supports, which is a distinct saving in labor and material. There is no question in regard to a saving on large paving projects."

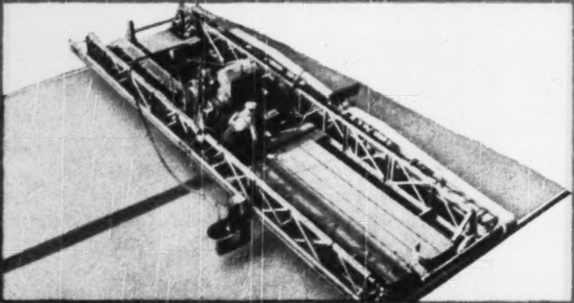
- C. W. Alley, Assistant Secretary, Worth Construction Company, Fort Worth, Texas: "The machine did the work quickly and kept dowel bars evenly spaced, much to the satisfaction of the engineers." Worth Construction Company estimates a saving of approximately $5000.00 on a highway on which they used the machine.

THE Flex-Plane Mechanical Bar Installer is the only **new** machine developed for concrete pavers in the last decade (except the Flex-Plane spray machine). This machine is solving the long-standing problems of high costs and unreliable methods. Impressive cost reduction is achieved by the elimination of dowel holding devices and the coincident reduction in labor. Depending upon specifications, the machine has installed (1) transverse dowels, (2) longitudinal tie-bars, (3) transverse contraction joints and (4) longitudinal joints. In addition, you are assured of better dowel installations, because tipping and twisting of the dowel assemblies and honeycombing adjacent to dowel baskets are eliminated.

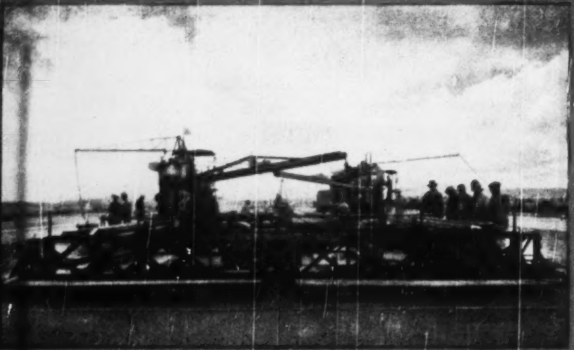
The machine, traveling on the forms behind the finisher, vibrates dowels to their exact position within the slab. There is a minimum disturbance to the slab surface—only the usual amount of hand floating common to any job is required. Additional technical information is available upon request.

Dowel machines are manufactured in two standard sizes: for half-width construction, with an attachment for forming transverse contraction joints; and for full width construction, with attachments for forming transverse contraction joints, installing longitudinal tie-bars and installing longitudinal dummy joints.

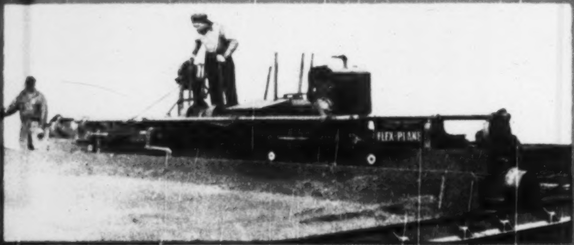
FLEX-PLANE
YES—$10,000 on a single job is possible!



Flex-Plane automatic spray machines apply material uniformly with no waste of expensive curing compounds. Completely automatic, it holds labor costs to the absolute minimum. Model shown above is equipped with optional brooming attachment and traffic line installer.



This labor-saving Flex-Plane mechanical joint machine installs longitudinal and transverse dummy joints — poured, ribbon or pre-moulded.



Above: Flex-Plane [illegible] finisher for the big highway and airport jobs. Its rugged construction and exclusive features help you make extra money.

Finishing equipment for bridge construction and elevated highways is a Flex-Plane specialty, too!

Low cost factory rebuilt finishers are also available for rental or sale.

FLEX-PLANE
Cost Reducing
EQUIPMENT

Flex-Plane's engineering and production facilities are devoted exclusively to mechanized equipment and accessories. You can save money on every step of the job with better built Flex-Plane finishers, bar installers, joint installing machines and automatic spray machines.

Flex-Plane bridges, traffic line installers, hand tools and joint supplies are dependable for your work. Before you bid or buy, check Flex-Plane and be sure. Mechanize and save.

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Men and Jobs

Twelve engineers have been promoted in the Texas Highway Department. DeWitt C. Greer, State Highway Engineer, described the changes as a "strengthening operation" made necessary by growth. **George M. Garrett**, former engineer for the Fort Worth district, becomes deputy state highway engineer. **Willis W. Finley** is promoted from assistant to engineer for the Fort Worth district. **Frank S. Maddox**, formerly San Antonio district engineer and **Thomas C. Collier**, engineer of road design, Austin, become assistant state highway engineers. **Roy L. Faltinson**, former assistant engineer at Corpus Christi, succeeds Maddox at San Antonio and **James C. Dingwall**, urban engineer for the Houston expressway project, becomes engineer of road design. **Herbert Eldridge**, Greer's administrative assistant, becomes chief engineer of planning; **John A. Waller**, Del Rio district engineer, becomes chief engineer of construction and maintenance; and **Russell J. Hank**, engineer of materials and tests, becomes chief engineer of operations. **Mack Hodges**, district engineer at Yoakum, will be transferred to the Del Rio district, and **M. G. Cornelius**, district construction engineer at Houston, becomes engineer for the Yoakum district. **Lawrence Ortolani**, designing engineer for the road design division, will become engineer of materials and tests at Austin.

Kenneth Thompson of St. John, N. B., a 1949 graduate in civil engineering of the University of New Brunswick, has been named the first sanitary engineer of Westmorland County, N. B.

William Evans has become superintendent of the Shenango Valley Water Co., Sharon, Pa., succeeding **John P. Hennings**.

Herman F. Kaade has been elected president of the Fort Wayne, Ind., City Plan Commission, succeeding **W. C. Dickmeyer**, resigned. **Thomas P. Riddle, Jr.**, was named a member of the commission.

Hitchcock & Estabrook, Inc., consulting engineers and architects, Minneapolis, Minn., announce the association with them of **James L. Corbett**, a graduate of Michigan School of Mines, Houghton, Mich. He will have charge of the Menominee office.

(Continued on page 48)

THE FORGES OF KERRIGAN

EXCLUSIVE ALTERNATING CONTINUOUS SPIRALS (SLIGHTLY ABOVE BEARING BARS) INSURE SAFER FOOTING

Specify

KERRIGAN Weldforged

STEEL GRATING & STAIR TREADS

- Greater Strength
- Safer Footing
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- See Our Catalog in Sweets.

Super Diamond Nosing (Standard)

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Write for desk size sample and NEW Grating Catalog containing photographs of actual installations and valuable engineering data.

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GENERAL SALES OFFICE, 274 MADISON AVE., N. Y. C.

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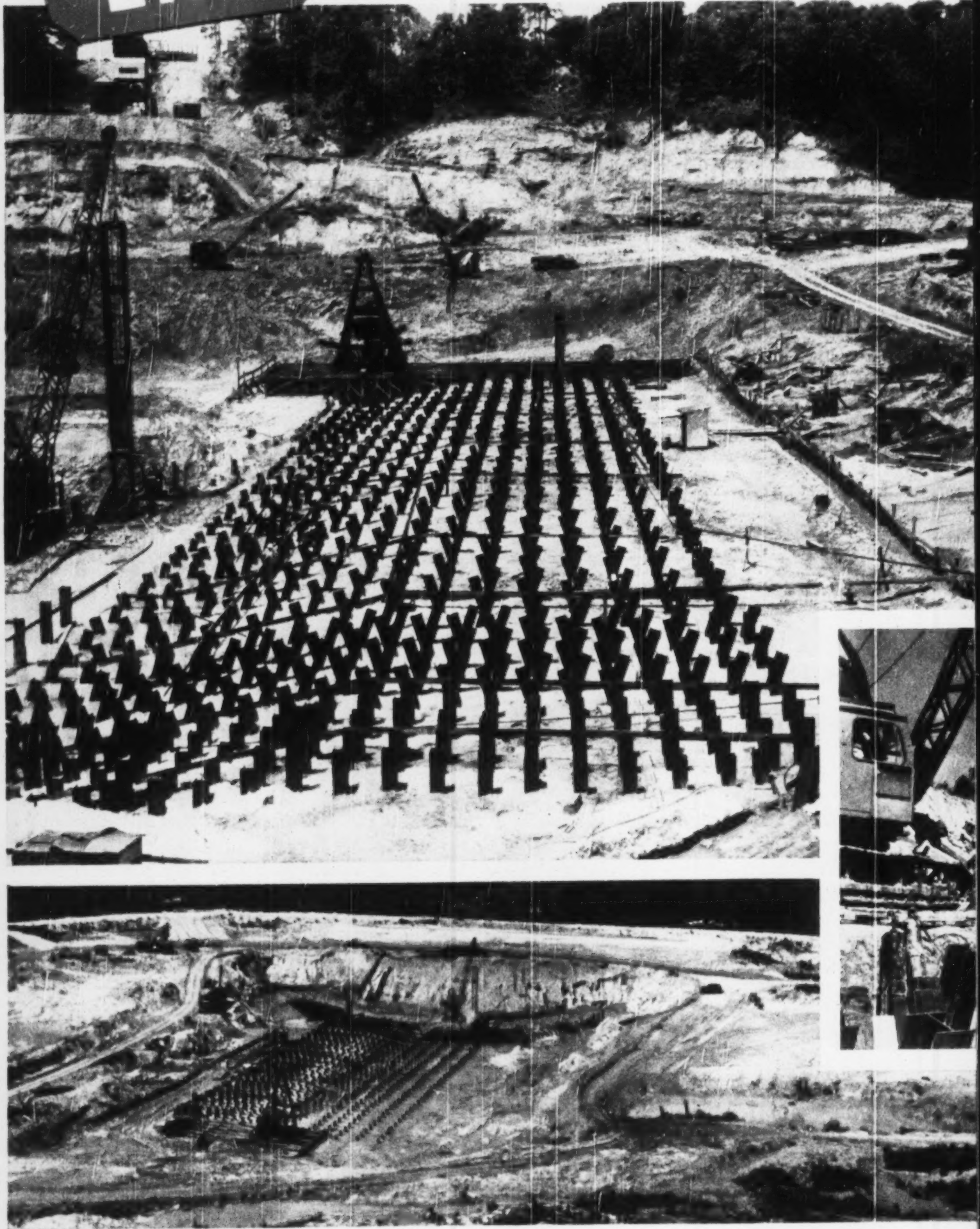
Steel H-Beam Bearing



Piles support huge spillway for Dam "B" near Jasper, Texas

Dam "B" is located on the Neches River, near Jasper, in the piney hills of East Texas. As a unit of the four-dam Neches-Angelina Rivers project, Dam "B" will provide a reservoir which will regulate the fluctuating outflows from the power plants of the proposed McGee Bend and Rockland reservoir projects.

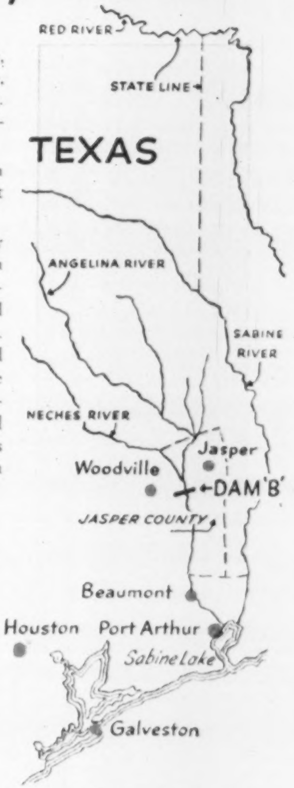
Construction of the concrete spillway section necessitated re-routing of the Neches River, excavation of 225,000 cubic yards of material and construction of a foundation of 53-pound steel H-Beam bearing piles.

These U·S·S Steel Bearing Piles, CBP Section-124, are spaced at 5-foot centers in the spillway structure, at 3½-foot centers in the wing walls, and at 8-foot centers in the stilling basin area, driven into hard-packed clay with a 19,000 foot-pound hammer.

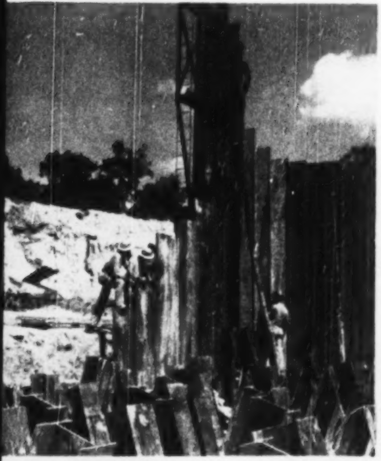
Piling in the main part of the structure consists of alternate rows of batter piling, up-stream and down-stream three-to-one, to sustain lateral load and prevent sliding. Straight vertical pilings are used in the stilling basin.

The gates of Dam "B" will close in December of 1950, with the entire project expected to be completed in 1952.

This dam foundation is one of many nationally important foundation jobs in which both economical and practical considerations are better served by U·S·S Steel Bearing Piles and U·S·S Steel Sheet Piling. Let us show you how these service-tested construction products can be used to solve your problems most efficiently. For complete details, call the United States Steel office nearest you, or write to United States Steel, 2127 Carnegie Building, Pittsburgh 30, Pennsylvania.



CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH & CHICAGO · COLUMBIA STEEL COMPANY, SAN FRANCISCO
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM · UNITED STATES STEEL EXPORT COMPANY, NEW YORK



In addition to the driving of the H-Beam batter piles, engineers are busy driving sections of U S S MP-102 Steel Sheet Piling along the up- and down-stream limits of the concrete spillway structure to prevent seepage under the concrete portion of the dam. The up-stream Steel Sheet Piling sections are 32 feet long, down-stream, 26 feet long.

The construction of Jasper "B" Dam is under the direction of Lt. Colonel Ellsworth I. Davis, District Engineer, U. S. Army Corps of Engineers, Galveston, and under the immediate supervision of Fred W. Johnson, Resident Engineer. The gated spillway will be built by Reynolds & Williams and Noonan Construction Company, G. E. Murphey, Superintendent.

USS

STEEL H-BEAM BEARING PILES

UNITED STATES STEEL

(*Continued from page 45*)

R. W. Hebard & Co., Inc., engineers and contractors, have removed from 30 Broad Street to 475 Fifth Ave., New York 17, N. Y.

Charles C. Brown, city manager of Dover, Del., is resigning to open his own engineering-survey office in Dover. A graduate of the University of Delaware as civil engineer, Mr. Brown has been city manager since August, 1947. He formerly was city engineer.

Humble Oil & Refining Co., of Houston, Tex., has announced the following promotions and transfers of civil engineering personnel: **J. T. Lee**, civil engineer, Kelsey district, Southwest Texas division, was transferred to the Tyler division office as senior civil engineer; **W. A. Schaefer**, formerly district civil engineer at London, was transferred to Hawkins as district civil engineer. He was replaced by **Fred S. Godbold**, who formerly was district civil engineer at the Opelousas Gas Plant Construction district; **D. W. Marston**, formerly district civil engineer at Hawkins, was transferred to the Tyler division office as senior civil engineer.

P. H. Van Etten, principal hydraulic engineer of the California Division of Water Resources, has been named assistant state engineer. He succeeded **A. D. Edmonston**, who was promoted to the post of state engineer made vacant by the retirement of **Edward Hyatt**. **T. R. Simpson** will succeed Van Etten, taking charge of the Bryte, Yolo County, office of the water resources division.

Arthur E. Reitter, city engineer for both Colusa and Williams, Calif., has been appointed city engineer for Lincoln to succeed **Elmer A. Johnson**, resigned.

James E. Alley has resigned as engineer of the Oroville-Wyandotte, Calif., irrigation district to become engineer and superintendent of the irrigation district in Paradise, Calif.

Charles F. Ramseyer and **Jack R. Miller** have formed Ramseyer & Miller, Inc., consulting engineers, at 11 West 42nd Street, New York 18, N. Y. They will engage in investigations, reports and design for heavy industry. Mr. Ramseyer is a graduate of Harvard and M.I.T. and Mr. Miller of Cooper Union and New York University. They recently returned from a 35,000-mile trip around the world visiting engineering projects.

MUNICIPAL AFFAIRS

FLOOD CONTROL work in the Los Angeles area includes channelization of the Los Angeles River, left, and the Tujunga Wash, right. Much of the river bed through downtown Los Angeles has already been improved.

Alaskan Public Works

The first allotment of funds appropriated by the 81st Congress for construction of public works in Alaska has been approved by Jess Larson, Administrator of General Services.

A total of $2,685,214 was earmarked for federal construction of twelve projects in eleven different sections of the territory. Applications have been filed for 50 projects having an estimated construction cost in excess of $18,000,000.

Larson said the twelve projects were selected for their emergency nature and because plan preparation has advanced to the stage where bids may be taken shortly. It is expected that construction will begin in a few months.

For displaced families

Special attention to plans for the rehousing of families to be displaced in slum clearance projects has been urged upon communities by Nathaniel S. Keith, director of the Division of Slum Clearance and Urban Redevelopment of the Housing and Home Finance Agency.

Director Keith said that since residents of slums and blighted areas in most cases were in the low-income or middle-income groups, different approaches for the problems were indicated.

Before a loan and grant contract is signed, the local public agency must submit to the Housing and Home Finance Agency acceptable plans for the rehousing of dislocated families. The director indicated that preparation of such plans may be financed as part of a final planning advance, while reasonable expenditures for assisting families to find and move into new quarters will be accepted as part of project costs.

Municipal Briefs

Rochester's 5-Year Plan—A $26,140,000 five-year public improvement program for Rochester, N. Y., has been proposed. Projects included are: A community war memorial building, construction of water pipelines and pumping plants for city use of Lake Ontario water, low-cost housing development, public market improvements, arterial highway construction, street resurfacing and reconstruction, public safety projects, reconstruction of subway structures and erection of incinerator plants.

Industrial fumes—John L. Hodges, chief of the division of air pollution control at Philadelphia, is urging the state to step up research on dangerous industrial fumes. He believes that such fumes as those of carbon monoxide and dioxide, and certain hydrogen compounds are a greater problem in cities than smoke.

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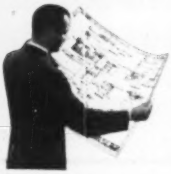

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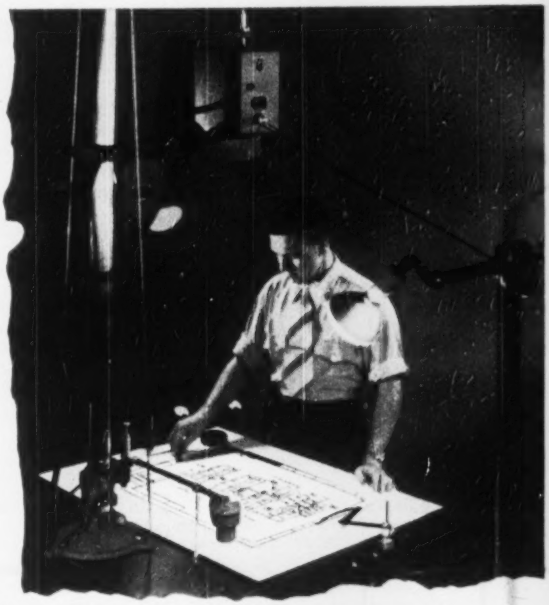
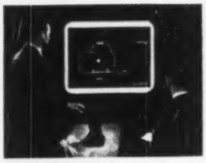
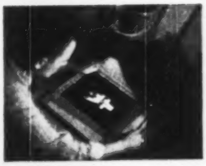


To view your microfilm records in the office ... the Kodagraph Film Reader. Each image is enlarged sharp and clear ... easy to read and check ... on a special green-tinted viewing screen. You can speed the film from image to image ... get all the information you need—quickly.

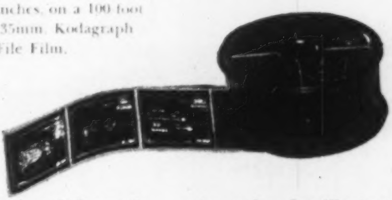


To view your microfilm records in the field ... the Kodagraph Portable Projector. You can flash your records on any screen or light colored wall ... magnified at dimensions up to several times larger than the original, if necessary. It is convenient to carry—weighs only twelve pounds.



To make enlargement prints from your microfilm records ... the Kodagraph Micro-File Enlarger. It produces prints of maximum legibility ... so sharp that they can be used as intermediates in direct process or blueprint machines.

In weighing the advantages of installing a Kodagraph Micro-File Machine in your engineering department ... consider, too, the economy of the operation. You can record 675 drawings, size 24x36 inches, on a 100-foot roll of 35mm. Kodagraph Micro-File Film.



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OBITUARY

James H. England, 56, executive director of the New York City Housing Authority, died March 19. He had previously been principal building construction engineer in the N. Y. State Department of Public Works. He was a graduate of Union College. In the first world war he was a lieutenant in the Army Engineers Corps. In 1946 he was put in charge of all construction for the state veterans' emergency housing in the N. Y. City area.

Charles T. Laubscher, 83, retired civil engineer for the Pennsylvania Railroad, and an 1893 graduate of Case Institute of Technology, died in Cleveland, Ohio, March 5.

Darwin W. Townsend, 61, of Milwaukee, Wis., a partner of Consoer, Townsend and Associates, died March 13. After graduation from the Pennsylvania Military School, he worked for the late T. Chalkey Statton, consulting engineer of Wilmington, Del. From 1914 until 1936, he served the Milwaukee Sewerage Commission in various capacities, and at one time was its acting chief engineer.

Casper M. Durgin, 53, civil engineer, who had been with the Coast and Geodetic survey for 30 years, died in Washington, D. C., March 11. Latterly he was chief of the charts division. A graduate of Harvard, he commanded survey ships in various territorial waters. In the war he was assigned to staff duty with the Navy in the Alaskan area.

James F. Donahue, 60, an assistant bridge engineer with the Illinois highway department for 31 years, died at Springfield March 14. He was a graduate of the University of Vermont, 1914.

Jens E. Nielsen, 62, for many years consulting engineer for railroads entering Chicago and structural engineer on a number of the larger Loop buildings in downtown Chicago, died March 5, in Key West, Fla.

Robert N. Lohn, 45, of Minneapolis, Minn., district engineer in the asphalt division of Socony-Vacuum Oil Co. and a 1929 C.E. graduate of the University of Minnesota, was killed in a plane crash near Minneapolis on March 7.

J. Cameron Jenkins, 69, civil engineer who supervised construction of the Nicollet Hotel, Minneapolis, Minn., died in that city March 7. He was a 1906 graduate of Columbia University. He was district engineer in the federal public works program in 1933, supervising the work in 26 counties.

William Test Haight, 56, state highway engineer on Southern California freeways, died Feb. 27 in Glendale, Calif. A native of Connecticut, he moved to California 40 years ago. Among the engineering projects he directed was construction of the main caissons on the San Francisco-Oakland Bay Bridge.

Edward M. Woollcombe, 49, vice-president and general manager of the Foundation Maritime Ltd., Halifax, N. S., died there March 5. He was a science graduate of McGill University.

Charles C. Sneed, 49, an engineer for the Missouri highway department for the last 20 years, died at Jefferson City March 5. He received his degree in civil engineering from the University of Alabama, and was employed by the Illinois highway department six years prior to joining the Missouri department.

John E. Bretz, 80, president of the Sangamo Construction Co., Springfield, Ill., died March 5 in Fort Myers, Fla. He served as the first president of the Illinois Contractors Association in 1909.

John E. M. Hall, 92, retired civil engineer and one of the oldest graduates of Yale University, died in New York City March 7. He studied engineering at the Sheffield Scientific School and was graduated in 1877. He lived in Staten Island for 62 years.

C. A. Fowler, 58, construction engineer, who designed many of the large structural projects in the maritime provinces of Canada, died at Halifax, N. S., March 4. A graduate of Nova Scotia Technical College, he founded the firm of C. A. Fowler and Co. at Halifax. He was associated with P. C. Pratley of Montreal as consultant on plans for the Canso Straight bridge, construction of which is expected to start soon to connect the mainland of Nova Scotia with nearby Cape Breton Island.

Clay Briggs, 65, chief engineer and director of Cities Service Oil Co., died recently at Bartlesville, Okla. A civil engineering graduate of Leland Stanford University, he had supervised the construction of numerous oil refineries in various parts of the country.

ELECTIONS AND ACTIVITIES

John Stough, Findlay, has been elected president of the County Engineers' Association of Ohio, succeeding Albert S. Porter, Cleveland. Others elected: Argyle Moon, Upper Sandusky, first vice-president; O. Carson Barklow, Portsmouth, second vice-president; Delos Nissen, Port Clinton, treasurer; and Walter Jacobs, Columbus, re-elected secretary. Directors Leroy Roush, Fremont; Carl Snyder, Millersburg; Robert Plummer, Zanesville; Donald Blythe, Carrollton; James Holden, Newark; Stanley Bell, Ottawa; Robert Eastman, Springfield; Frank Thatcher, Wilmington; Leon Wolford, Lancaster; and Cecil Stacy, Marietta.

Consulting Engineers Association of California elected Harold B. Hammill, San Francisco consulting civil engineer, as president to succeed Mark Falk, San Francisco. Elected with him as members of the board of directors were John A. Blume, vice-president; William W. Moore, secretary-treasurer; and C. C. Kennedy and Mark Falk.

At the state convention of the California Society of Professional Engineers held recently in Sacramento, John L. Trebilcock, San Leandro, was elected president. He succeeds Earl N. Holm, Sacramento, who was named the group's representative on the national society's board of directors. Other state officers chosen were Edward Warburg, Los Angeles, first vice-president; George Zelhart, Fresno, second vice-president; Claude Helm, Sacramento, third vice-president; Robert Wing, Sacramento, secretary; and Kenneth Biesemeir, Modesto, treasurer.

Lionel J. Cuculla of New Orleans has been elected president of the Louisiana Engineering Society. He succeeds Herman L. Lehmann, of Baton Rouge. Other officers, Harry P. Newton, first vice-president; John A. McNiven, second vice-president, and John P. Fernandez, secretary-treasurer, all of New Orleans.

H. F. Jones of Raleigh has been elected president of the North Carolina Society of Engineers, succeeding T. C. Heyward of Charlotte. Other

(*Continued on page 52*)

Raymond MAKES 5 TYPES OF CONCRETE PILES

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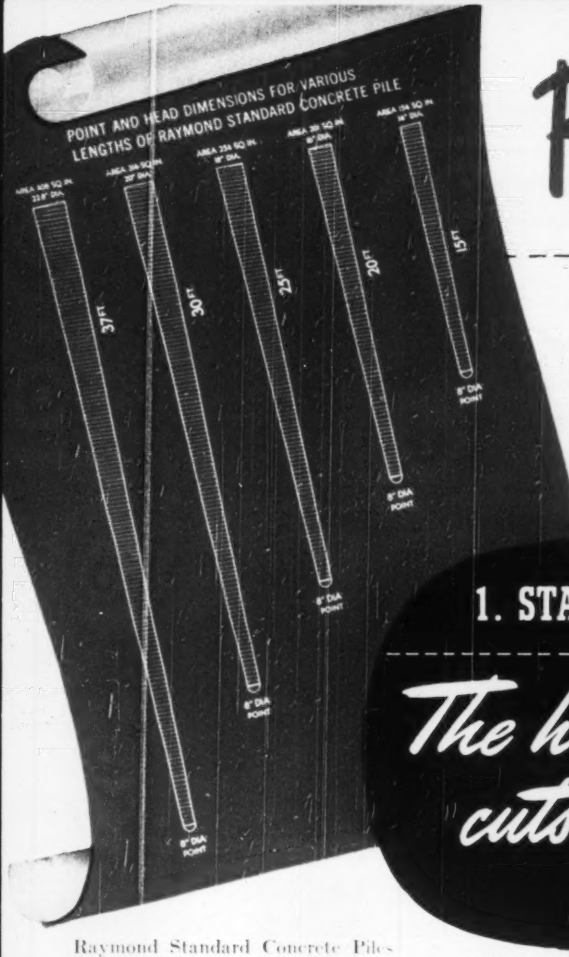

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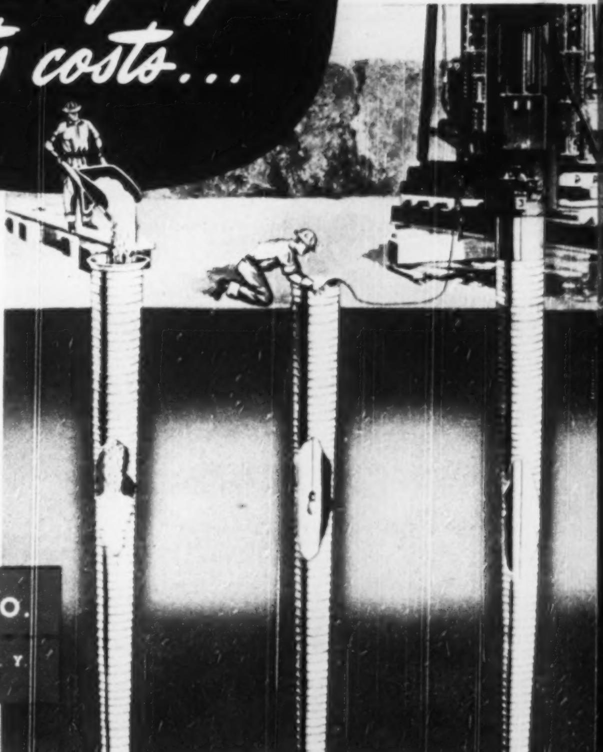
The heavy taper cuts costs...

Note that the permanent steel shell maintains the soil pressure developed during driving and while the concrete is setting, thus insuring a perfect pile free from distortion with a high load capacity.



Raymond Standard Concrete Piles have a heavy, uniformly tapered permanent steel shell. On friction piles, this taper acts like a wedge, giving these specific advantages:

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BRANCH OFFICES: Boston, Syracuse, Philadelphia, Baltimore, Washington, Pittsburgh, Atlanta, Miami, Houston, Kansas City, St. Louis, Cleveland, Chicago, Detroit, Portland, San Francisco, Oakland, Los Angeles and principal cities in Latin America officers: Ross H. Reynolds of Raleigh, vice-president; Leroy M. Keever of Raleigh, re-elected secretary-treasurer; and O. B. Packard of Wilmington, J. Norman Pease of Charlotte, W. H. Rogers, Jr., of Raleigh, and Carroll L. Mann, Jr., of Greensboro, directors.

The Builders Association of Niagara Falls, N. Y., has elected John C. Bullock president. Other officers, Bruno K. Scrufari, vice-president; Edwin C. Woolcock, treasurer; Gaylord Guenther, Howard Einsfield, and Jack Johnson, directors.

Officers for the Idaho Society of Engineers for 1950 are A. S. Janssen, president; H. R. Flint, vice-president; James L. Morris, secretary, and Archie Biladeau, treasurer. Orlando C. Mayer, Boise, retiring president, was elected a director of the National Association of Professional Engineers.

New officers of the Nova Scotia Road Builders Association are: President, G. C. Hault; vice-presidents, D. H. Norman, Halifax, and R. S. Parsons, Windsor; secretary-treasurer, J. G. Comeau, Enfield; W. P. Bickle, D. R. MacKay, R. F. MacAlpine, M. H. McManus, D. F. MacIsaac, D. A. Chisholm, executive committee.

MAJOR MEETINGS

Western Public Works Congress, Hotel Leamington, Oakland, Calif., April 2-4.

Canadian Section, American Water Works Association, General Brock Hotel, Niagara Falls, Ont., April 3-5.

New Jersey Society of Professional Engineers, Essex House, Newark, N. J., April 14-15.

Highway Transportation Congress, Mayflower Hotel, Washington, D. C., April 25-27.

American Society of Civil Engineers, spring meeting, Los Angeles, Calif., April 26-29.

Maryland-Delaware Water and Sewerage Association, Fort Cumberland Hotel, Cumberland, Md., April 27-28.

Third Inter-American Congress of Municipalities, New Orleans, La., May 2-5.

N. Y. State Society of Professional Engineers, Hotel Statler, New York City, May 4-6.

American Society of Civil Engineers, Pacific Northwest Conference, Winthrop Hotel, Tacoma, Wash., May 5-6.

U. S. Conference of Mayors, Waldorf-Astoria Hotel, New York City, May 11-13.

Florida Highway Conference, University of Florida, Gainesville, Fla., May 11-23.

American Water Works Association, annual conference, Convention Hall, Philadelphia, Pa., May 21-26.

Society for Experimental Stress Analysis, spring meeting, Hotel Statler, Cleveland, Ohio, May 25-27.

EDUCATION and RESEARCH

Engineering Foundation's successful activities

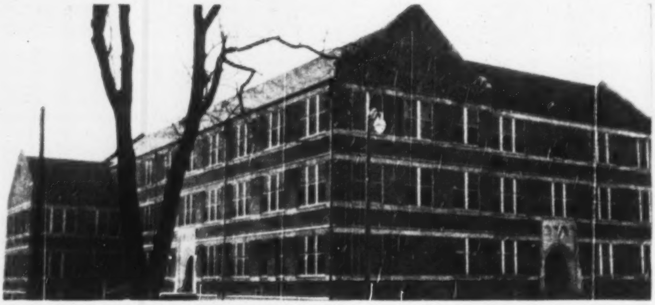
Sponsorship and grants of $42,500 were made by the Engineering Foundation to 12 fundamental research projects in the engineering sciences and to two projects advancing the engineering profession. They stimulated contributions of $642,800 by industry and universities to those projects for the fiscal year ended Sept. 30, 1949. This was brought out by the annual report of the foundation.

The foundation was established 35 years ago as the joint research activity of the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers.

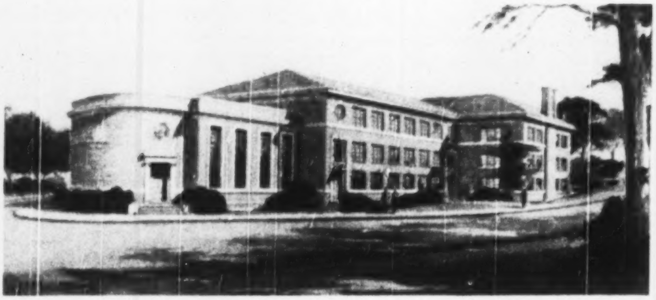
Notable among the current projects are the councils on riveted and bolted structural joints, on the properties of columns, and on the characteristics of reinforced concrete, sponsored by the ASCE.

The council on riveted and bolted joints has six projects under way, the results of which are expected to be of value in the design of new railway and highway bridges, and in strengthening old bridges.

For prospective engineers



PERKINS HALL DEDICATED—This new 5-story, 89-room "engineering community center" was dedicated at the University of Tennessee college of engineering, Knoxville, March 6. Costing almost a million dollars, the building houses a whole community of engineering activities. It is named in honor of the late Charles A. Perkins, member of the faculty for 49 years. The building includes labs for work in sanitary, highway and structural engineering. Prof. Edgar G. Shelton did the structural design, Asst. Prof. G. H. Parham, Jr., the floor plans. Barker and McMurray were the architects, and the prime contractor was V. L. Nicholson Co.—both of Knoxville.



NEW ENGINEERING BUILDING—Above is the architect's sketch of the proposed $1,000,000 engineering building for the campus of Manhattan College, Riverdale, New York City. Designed by Eggers and Higgins, architects, of New York, it will be faced with red brick and limestone trim to conform with the Georgian-Colonial architecture of neighboring buildings. There will be four floors. The ground floor will contain laboratories for materials testing, soil mechanics, sanitary analysis and hydraulics. The school of engineering, under the direction of Brother A. Leo, dean, was the first Catholic engineering school to be established in the East. It has about 1100 students.

UNIT PRICES BID BY CONTRACTORS

Pine Flat Dam, Kings River, Cal.

Prices for dental excavation and stainless steel pipe add interest to the bids on Pine Flat Dam in Fresno County, California, taken Nov. 1, 1949, by the Corps of Engineers, Sacramento District.

The rough excavation for the two abutments was let in separate contracts in 1947 so that to date $25.1 million is under contract on this $36 million concrete gravity type dam. It will be the 9th highest dam in the world, 410 ft., and the 2nd highest in California. It is to be 1850-ft long and will impound 1,000,000 af. Its immediate purpose is flood control, but it will have penstocks for future power development, and may provide irrigation water by negotiation with Bureau of Reclamation.

The main contract for $24.3 million covers dental excavation classified for pricing in four depth ranges, 0-10 ft, 10-30 ft, 30-60 ft and over 60 ft which was bid from $10 to $40 a cy. This consists of taking out soft seams and hand cleaning. Rough excavation was let in previous contracts.

Stainless steel is specified for intake piping, air vents and other piping buried in concrete.

Completion time is 1,700 calendar days with liquidated damages set at $1,000 a day.

The contractor must maintain, including strict dust control, access roads out of Centerville which is 16 miles east of Fresno on State Highway No. 180. The Atchison, Topeka & Santa Fe RR has a freight station at Piedra.

The government furnishes sluice and tainter gates which the contractor is to install. Concrete aggregates and water will be precooled. The air-entraining admixture may be interground with cement or added at the mixer — at the contractor's option.

On the 1949 main dam contract, minimum wage rates required by the government include carpenters, $2.175; cement finishers, $2.20; ironworkers, structural $2.40; ironworkers, reinforcing, $2.15; asphalt rakers and ironers $1.675; power equipment operators $1.94 to $2.59; unskilled laborers $1.45.

For construction of Pine Flat dam itself, seven bidders included:

1	Guy F. Atkinson Co., Bressi & Bevanda Constructors, Inc. Chas. L. Harney, Inc., J. A. Jones Constr. Co., & A. Teichert & Son, Inc., San Francisco, Calif. (contract)	$24,339,777
2	Morrison-Knudsen Co., Inc., Peter Kiewit Sons' Co. & Macco, Los Angeles	24,935,977
3	United Construction Co., Winona, Minn.	25,982,816
7	S. A. Healy Co. & Material Service Corp., White Plains, New York	35,291,745

Items		Quantity	Unit prices Nov. 1949 1 Cont	2
Diver & Care of Water	ls	1	450,000	174,000
Excav, Unclass.	cy	100,000	4.50	11.00
Excav, Parking Area	cy	4,300	2.50	2.30
Excav, Dental, 0-10 feet	cy	5,400	10.00	25.00
10-30 feet	cy	1,200	20.00	75.00
30-60 feet	cy	800	40.00	75.00
over 60 ft	cy	850	40.00	75.00
Dumped Rock Backfill	cy	21,700	1.90	2.20
Graded Backfill	cy	1,400	3.00	3.00
Foundation Clean-Up	sy	40,000	2.25	4.40
Fld Stone Wall in Park. Ar	lf	170	14.00	13.00
18" Semi-Circ. Met Drns	lf	950	7.00	8.00
Mass Concr for Dam	cy	2,150,000	7.71	7.27
Concr for Backflg Dent Excav, Drifts, Tunnels & Calvs Hls	cy	10,000	9.00	13.00
Concr in Pwr Intakes, Spray Walls, Bridge, Piers and Turnaround	cy	25,125	24.00	28.00
Concr, Parpt Walls, Floatwell Gauge Rm & Outsd Strs	cy	220	100.00	150.00
Steel Reinf	lb	2,100,000	0.085	0.11
Port Cmnt	bbl	1,600,000	2.75	3.20
Instl Sl Gates & Acces	ls	1	100,000	80,000
Sl Gates Oper Equip	ls	1	50,000	35,000
Instl Taintr Gates, Mech & Acces	ls	1	100,000	90,000
Penstock Liners	lb	1,560,000	0.24	0.23
Trash Rack Guides	lb	364,000	0.16	0.16
Pwr, Lght & Telph Sys	ls	1	90,000	96,258
Tower	ls	1	115,000	90,000
Rdway Drns	ls	1	2,000	3,200
Domestic Water System	ls	1	11,000	15,000
Sanitary Sys	ls	1	13,500	10,000
Sump Pump. System	ls	1	4,500	5,000
Compressed Air Sys	ls	1	5,000	7,000
Off Vent & Heat Sys	ls	1	2,500	4,000
Floatwell	ls	1	16,000	20,000
Air Int Lts; Sl Cond	lb	46,000	0.25	0.32
Air Int Lnr, Penstocks	lb	58,400	0.25	0.31
Copper Water Stops	lb	33,000	1.60	1.30
Tile Partns, Gal'ry Toilets	ls	1	1,000	400
Met Cov Drs & Frames	ls	1	1,000	1,500
Parapet Handrail	lf	3,520	4.50	6.00
Pipe Hndrl	lb	12,100	0.65	0.65
Safety Treads	lf	5,000	2.00	2.10
Emerg Gentr Eng Fuel & Exh Sys	ls	1	2,500	1,900
C I Drains, Rf & Fire	lb	500	2.00	0.50
Timber	fbm	2,000	0.40	0.40
Sl Stop Log Gate & Lift Beam	ls	1	7,500	8,000
Gate Guides, Fr & Aces	lb	880,000	0.30	0.32
Elec Hand Lantern	ea	4	18.00	20.00
Port Fire Exting	ls	1	500	200
Misc Iron and Steel	lb	54,500	0.45	0.40
4" Galv Steel Pipe	lf	600	2.25	4.00
Sch 40				
12" Black St Pipe,	lf	125	7.50	14.00
8"	lf	400	4.50	8.00
6"	lf	680	4.00	6.00
4"	lf	500	2.25	4.00
3½"	lf	2,500	2.25	3.00
3"	lf	100	1.75	2.50
2½"	lf	5,000	1.75	2.00
2"	lf	720	1.30	1.50
1½"	lf	180	1.20	1.00
12" Dresser Coupling	ea	2	35.00	60.00
12" Gate Val	ea	3	350.00	400.00
6" Gate Val	ea	10	125.00	200.00
2" Brnz. Gate Valve	ea	14	25.00	60.00
1½" Bronze Gate Valve	ea	14	25.00	50.00
Misc Pipe Fittings	lt	21,900	0.70	0.70
12" Stnls. St. Pipe, Sch 40	lf	75	80.00	60.00
6"	lf	570	18.00	22.00
2"	lf	180	6.50	6.00
1½"	lf	520	5.50	5.00

Unit prices on earlier contracts for rough excavation for right and left abutments will be reported in a forthcoming issue.

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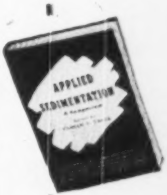

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager · *J. A. MAHONEY, Reports* · *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

Tex., Roscoe—B. A. 4/6—City, Roscoe, WW. $30,000. Joe E. Ward, Nacol Bldg., Wichita Falls, engr.

Va., Blackstone—B. A. 4/11—Town, R. David Maben, Jr., town mgr., Blackstone, 1 m.g. concrete reservoilr.

† **Fla., Cocoa**—B. A. 4/20—U. S. Eng., 575 Riverside Ave., Jacksonville, Zone 1, portable water sys. and fire protection water sys. for Joint Long Range Proving Ground at Launching area, near here, Serial No. Eng-08-123-50-4. Plans deposit $15. Extended date. CD 3/15.

Tex., Alamo—Bids Asked—F. G. Davis, C. R. Berry & R. S. Shelburne, Alamo, c.i. water lines, facilities, on 75 acre tract, north of Los Ebanos Heights. $40,000.

LOW BIDDERS

N. C., Gastonia—City, P. A. Roberts, mgr., Mar. 7, water and sewer imprvs. to be done in conjunction with wid'n., repaving Franklin Ave., Contr. 3, from C. M. Allen & Co., Inc., Piedmont Bldg., Charlotte, **$63,753**. Piatte & Davis, Durham, engrs. CD 7/28/44.

CONTRACTS AWARDED

Mich., Detroit—Dpt. P. Wks., City Hall Contr. PW 6798, 1 story, 50x204 ft., rein.-con. Fairview Pumping Station addn., to Douglas Cloud Co., 1017 Penobscot Bldg. **$524,885**. Bids 2/20, awarded 3/8. CD 3/7 under LB.

Tex., Dallas—Joe F. Mayberry & Frank H. Garrott, Tower Petroleum Bldg., c.i. water lines. Owner builds. Approx. **$31,000**.

Tex., Houston—Archer Development Co., Electric Bldg., c.i. water lines, for 152 acre 711 homesites tract, east of Houston Rd. and north Halls Bayou. Owner builds. **$42,000**. E. S. Butler, 701 Polk St., engr.

Tex., Houston—Suburban Realty Co. & Assoc., Commerce Bldg., c.i. water lines. Owner builds. Approx. **$40,000**. B. L. Durst, 3816 Erie St., engr.

Tex., McAllen—City, water lines, force account. **$35,000. CD 10/8/47.**

SEWERS, WASTE DISPOSAL

BIDS ASKED

Conn., Winsted—B.A. 4/5—City, P. Wks., 27 Elm St., Contrs. A and B sanitary sewer, N. Main St.; appurtenances. Plans deposit $15. Contr. A and Contr. B each. Buck & Buck, 650 Main St., Hartford, engrs.

Tex., Roscoe—B.A. 4/6—City, sanitary sewers. $50,000. Joe E. Ward, Nacol Bldg., Wichita Falls, engr.

Calif., Kings Beach—B.A. 4/8—North Tahoe Public Utility Dist., Kings Beach, Lake Tahoe, 4 sewage pump stations, trunk sewer and force main and collection sewers. Approx. $50,000. Plans deposit $10. L. C. Macabee, 156 University Ave., Palo Alto, engr.

Tex., Alamo—Bids Asked—F. G. Davis, C. R. Berry & R. S. Shelburne, Alamo, sanitary sewers, 75 acre tract, north of Los Ebanos Heights. $65,000.

LOW BIDDERS

Tenn., Mt. Pleasant—City, Mar. 6, collection sys., from G. E. Moore Co., Greenwood, S. C., **$135,297**; disposal plant, from Stein Constr. Co., 201 Chestnut St., Chattanooga, **$98,662**. CD 2/20.

Tex., Lubbock—City, Mar. 9, sanitary sewer lines, laterals, from Panhandle Constr. Co., 620 Texas Ave., **$116,895**. Est. $75,000. CD 3/2.

CONTRACTS AWARDED

Tex., Dallas—Joe F. Mayberry & Frank H. Garrott, Tower Petroleum Bldg., sanitary sewers. Owner builds. Approx. **$55,000**.

Tex., Houston—Archer Development Co., Electric Bldg., sanitary sewers. Approx. **$70,000**; storm sewers, **$58,500**, 152 acre site for 711 homesites east of Houson Rd. and North Halls Bayou. Owner builds. E. S. Butler, 701 Polk St., engr. CD 2/23.

Tex., Houston—Ayrshire Corp., 6825 Academy St., sanitary and storm sewers, Sect. 7, Ayreshire Village, to L. Renault Co., Pasadena. Approx. **$56,000**. Est. $60,000. Dan J. Allison, 3793 Farbar St., engr. CD 2/23.

Tex., Houston—Suburban Realty Co. & Assoc., Commerce Bldg., sanitary and storm sewers. Owner builds. **$56,000**. B. L. Durst, 3816 Erie St., engr.

BRIDGES

BIDS ASKED

New Jersey—B.A. 4/4—New Jersey Turnpike Auth., Veterans Room, War Memorial Bldg., Trenton.

Union Co.—Contr. 15, construct substructures, superstructures Morse's Creek Bridge and Railroad Ave. Viaduct which will form part of new superhighway in Linden.

LOW BIDDERS

West Virginia—State Rd. Comn., Charleston, Feb. 21, c. conc. Valley Drive Underpass 1807 and approaches Beckley U 315 (2), Raleigh Co., from Agnew Constr. Co., Ronceverte, **$114,585**.

CONTRACTS AWARDED

Ill., Chicago—Cook Co., County Bldg., Zone 2, Edens Superhighway grade separation over Chicago, North Shore & Milwaukee Electric Line and Chicago & North Western R. R., to Arcole Midwest Corp., 3225 Main St., Skokie, **$577,300**. Bids 10/18, awarded 2/21. CD 2/27, under LB.

STREETS AND ROADS

BIDS ASKED

Pennsylvania—B. A. 4/4—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg.

Allegheny Co.—grading, drainage, paving, structures 2.93 mi. Sect. 31 C, Western Exten. of Pennsylvania Turnpike from point approx. 1,356 ft. west of Unity-Trestle Rd. in Plumb Twp. easterly 15,460 ft. to point approx. 421 ft. east of Monroeville-Trestle Rd. in Patton Twp. Plans deposit $10. R. B. Stone, c/o owner, ch. engr.

Fla., Jacksonville—B. A. 4/13—City, City Hall, approx. 7,162 sq. yd. c. conc. sidewalks in various parts of city. CD 1/18/45.

† **Tenn., Oak Ridge**—B. A. 4/18—U. S. Atomic Energy Comn., P. O. Box E, Attention: R. J. Dunbar, Engr. Div., Main Admin. Bldg., construct Oak Ridge Turnpike wid'n. approx. 2½ mi. in controlled area of Oak Ridge, Inv. No. 401-50-10 A. Plans deposit $15.

Tex., Alamo—Bids Asked—F. G. Davis, C. R. Berry & R. S. Shelburne, Alamo, street constr., paving, 75 acre tract, north of Los Ebanos Heights. $75,000.

LOW BIDDERS

California—State Div. Hys., Sacramento, Mar. 8, plant mix on crusher run surf., constr. borders 5.6 mi. between Tudor and Lincoln Rds., from Rice Bros., Inc., Box 1489, Marysville, **$94,473**.

▲ **Pennsylvania**—Pensylvania Turnpike Comn., 11 N. 4 St., Harrisburg, Mar. 14, structures and grading, drainage and paving 3.89 mi. Sec. 30 C, Western Exten. of Turnpike, from point at Butler-Allegheny Co. line easterly 20,530 ft. to point approx. 534 ft. west of L. R. 02225; construct structures, grading, drainage and paving 5.14 mi. Sect. 30 D, Western Exten. of Turnpike, from point approx. 534 ft. west of L. R. 02225 easterly 27,132 ft. to point approx. 200 ft. west of west track of B. & O. R. R. in Hampton Twp., both Allegheny Co., from Frank Mashuda Co., William Penn Hotel, Pittsburgh, **$4,805,179**. CD 2/27.

† **Tennessee**—Bureau Pub. Rds., Dpt. Commerce, Gatlinburg, grading, surf. highway between Black Camp Gap and Heintooga Ridge in Great Smokies National Park, Sevier and Blount Counties, from Gatlinburg Constr. Co., Gatlinburg, **$332,000**. CD 2/3.

▲ **Texas**—State Hy. Comn., Austin, Mar. 14, flexible base and one course surf. tr. 7.744 mi. Hy. F. M. 729, R 1018-3-2, Marion Co., from Thomas & Ratliff, Rogers, **$63,373**; est. $70,000***flexible base and double asph. surf. tr. 15.923 mi. Hy. St. 101, Sterling Co., from M. E. Ruby & W. L. Barnes, San Marcos, **$131,453**, est. $116,000***flexible base and surf. 1.216 mi. U. S. Hy. 59, Eight Mile Creek and relief bridges, F. 192 (5), Harrison Co., from W. Paul Carlisle, Center, **$90,574**, est. $74,000***flexible base and asph. surf. tr. 13.098 mi. Hy. FM 122, S. 304 (4) and (3), Garza and Crosby Counties, from Strain & Brown, Inc., San Angelo, **$199,321**, est. $240,000***flexible base, one course surf. tr. 6.773 mi. Hy. FM 933, S. 1404 (1), Hill Co., from J. R. Canion Constr. Co. and Rex D. Kitchens Constr. Co., P. O. Box 756, Austin, **$68,616**, est. $72,000***flexible base, one course surf. tr. 8.228 mi. Hy. FM 605, S. 493 (2), Jones Co., from F. A. Seidel, Ballinger, **$64,134**, est. $76,000***stabil. fdn. course and one course surf. tr. 8.92 mi. Hy. FM 230, S. 995 (2), Houston Co., from Ernest Loyd, P. O. Box 1120, Fort Worth, **$83,382**, est. $67,000.

Base and asph. surf. 14.835 mi. Hy. FM 1174, 1175 and 1490, S. 1462 (1) and S. 1453 (1), Hockley Co., from J. R. Fanning, 1712, 13 St., Luddock, **$68,733**, est. $69,000***seal coat 155.822 mi. Hys. U. S. 70, 84, 87, 60 and S. H. 86, Proj. C 52-1-12 and others, Parmer, Lamb, Swisher, Floyd and Castro Counties, from Ned B. Hoffman, 617 Fort Worth Club Bldg., Fort Worth, **$135,481**, est. $130,000***flexible base, one coarse surf. tr. 6.736 mi. Hy. FM 1130, V. 1284-1-1, Orange Co., from John F. Buckner & Sons, Cleburne, **$145,318**, est. $165,000***flexible base, two course surf. tr. 10.614 mi. Hy. FM 788, S. 1494 (1), Floyd Co., from Cooper & Woodruff, 1203 Dallas Natl. Bank Bldg., Dallas, **$68,189**, est. $70,000***flexible base and one course surf. tr. 7.553 mi. Hy. FM 237, De Witt Co., from M-J Constr. Co., Inc., Beeville, **$70,189**, est. $73,000***stabil. fdn., course, and one course surf. tr. 10.374 mi. Hy. FM 156 and FM 1173, S. 1477 (1) and S. 1145 (2), Denton Co., from Long Bros. and L. K. Long, McKinney, **$119,971**, est. $118,000***flexible base, one course surf. tr. 14.596 mi. Hy. FM 802 and 803, Proj. S. 1481 (1) and S. 1482 (1), Cameron Co., from Dodds & Wedegartner, Inc., San Benito, **$152,171**, est. $180,000.

Flexible base, hot mix b. conc. pavement 2.117 mi. Hy. U. S. 81, Travis Co., from T. C. Cage & Dean Skinner, 607 Travis Bldg., San Antonio, **$959,291**, est. $1,250,000***c. conc. pavement wid'n., resurf. 1.087 mi. Hy. U. S. 190 and S. H. 21, C. 117-4 and 5-7 and 6, Madison Co., from Harrison Eng. & Constr. Corp., 4638 Mill Creek Parkway, Kansas City, Mo., **$55,468**, est. $75,000***hot mix b. conc. pavement 15.467 mi. Hy. U. S. 62, C-374-5-4, Hudspeth Co., from Hugh McMillan, P. O. Box 1227, El Paso, **$61,667**, est. $84,000***stabil. fdn. course and one course surf. tr. 9.2 mi. Hy. FM 660 and 780, V. 1048-2-2 and V-1048-3-1, Ellis Co., from John T. Leslie, Waxahachie, **$82,024**, est. $74,000***single asph. surf. tr. 41.238 mi. Hy. U. S. 75, etc., C. 92-2-26, etc., Dallas, Navarro, Collin and Ellis Counties, from D & H Constr. Co., P. O. Box 7053, Dallas, Zone 9, **$60,813**, est. $65,000***base and one course surf. tr. 10.368 mi. Hy. FM 639, S. 1341 (1), Navarro Co., from E. B. Hable & Sons, Corsicana, **$150,739**, est. $156,000. CD 2/28 and CD 3/1.

CONTRACTS AWARDED

† **Mississippi**—U. S. Eng., P. O. Box 60, Vicksburg, constr. Hickahala Rd., Tate Co., and Commerce Rd., DeSoto Co., Arkabutla Reservoir, approx. 5 mi. west of Hermando, CIVENG 22-052-50-89, to Pioneer Contg. Co., Inc., Dyersburg, Tenn., **$593,420**. CD 12/7.

Mo., Kansas City—City, City Hall, street wid'n. Charlotte St. from 27 to Linwood Sts., Holmes St. from 23 to 34 Sts., 34 St. from Holmes St. on west to Holmes St. on east to Kissick & Son Constr. Co., Hickman Mills, Kansas City, Mo., **$69,969**. Bids 2/14, awarded 3/7. CD 2/6.

Tex., Houston—Ayshire Corp., 6825 Academy St., street constr., asph. paving, Sect. 7, Ayrshire Village, to J. Renault Co., Pasadena, **$53,365**. Est. $60,000. Dan J. Allison, 3703 Farbar St., engr. CD 2/23.

Tex., Houston—Suburban Realty Co. & Assoc., Commerce Bldg., street constr. and asph. paving 84 acre tract for 304 home sites. Owner builds. Approx. **$65,000**. B. L. Durst, Commerce Bldg., engr.

Tex., Houston—Archer Development Co., Electric Bldg., street constr., ashph. paving, 152 acre site for 711 home sites east of Houston Rd. and north Halls Bayou. Owner builds. Approx. **$78,000**. E. S. Butler, 701 Polk St., engr.

EARTHWORK, WATERWAYS

BIDS ASKED

† **Arkansas**—B.A. 4/11—U. S. Eng., 300 Broadway, Little Rock, pilot channel at Hensley Bar, Arkansas River, Arkansas River Watershed, Multiple Purpose Plant, Serial No. CIVENG-03-050-50-68. Extended date. CD 2/2.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $65,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

† **Georgia**—B.A. 4/18—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., grassing, seeding, sprigging, soil repair and fertilizing slopes in reservoir area on Etowah River in Bartow, Cherokee and Cobb Counties, Allatoona Dam - Prop., CIVENG-01-076-50-60. Extended date. Plans deposit $5. CD 3/15.

LOW BIDDERS

Mo., Blue Springs—Lake Tapawingo Development Co., Blue Springs, Feb. 24, dam imprvs., from Knutson Gould Constr. Co., 3525 Broadway, Kansas City, Mo., **$52,600.** K. H. Larkin & Assoc., Wirthman Bldg., Kansas City, Mo., engrs.

CONTRACTS AWARDED

Tex., Houston—Archer Development Co., Electric Bldg., earthwork, clearing, grubbing for 152 acre 711 homesites tract, east of Houston Rd. and north Halls Bayou. Owner builds. Approx. **$35,000.** E. S. Butler, 701 Polk St., engr.

AIRPORTS

LOW BIDDERS

† **Mich., Selfridge Field**—BARRACKS—U. S. Eng., 520 Merchandise Mart, Chicago, Ill., masonry, concrete wood barracks, roads, utilities, Selfridge Air Force Base, from A. W. Kutsche and Co., 2924 W. Grand Blvd., Detroit, **$522,890.** CD 2/1.

PUBLIC BUILDINGS

BIDS ASKED

Tenn., Kingsport — HOUSING—B. A. 4/10—Kingsport Housing Auth., Kingsport, 36 housing units and one administration bldg. Allen N. Dryden, Kingsport, archt.

Va., Charlottesville—CANCER RESEARCH—B. A. 4/12—University of Virginia, Charlottesville, cancer research bldg., Baskerville & Son, 2313 W. Cary St., Richmond, archts. CD 7/6/45.

LOW BIDDERS

Ill., Chicago—POWER PLANT—State of Illinois, Springfield, Mar. 7, general work power plant repairs, alterations, at Chicago State Hospital, from Wolfes-Jensen & Co., 127 N. Dearborn St., Zone 2, **$83,975*****boiler and stoker work, from Lasker Boiler & Eng. Corp., 3201 S. Wolcott Ave., Zone 8 **$114,118*****ventilating and turbine rection work, from Chas. E. Crone Co., 1656 N. Ogden Ave., Zone 14, **$116,885.** CD 2/21.

Ill., Oak Forest—RECREATION—Cook Co., County Bldg., Chicago, Zone 2, 1 story, bsmnt., 175x208 ft. recreation bldg., assembly hall, cafeteria, therapy room, from Jos. J. Duffy Co., 4994 Elston St., Chicago, Zone 30, **$327,000.** Raymond F. Houlihan, 30 N. Dearborn St., Zone 2, co. archt.

Md., Annapolis—SCHOOL—Anne Arundel Bd. Educ., 207 Hanover St., Mar. 10, 1 story school addn., alterations, Eastport, from J. J. Stehle Co., 111 Academy St., **$295,000.** CD 3/1.

N. Y., East Setauket—SCHOOL—Bd. Educ., Union Free School Dist. 2, East Setauket, rejected bids Nov. 22, school. L. B. **$557,000.** CD 11/29, under LB.

N. C., Elizabethtown—SCHOOLS—Bladen Co. Bd. Educ., Elizabethtown, Clarkton High School, Clarktown Elementary School, Elizabethtown School, Bladenboro (Spaulding-Monroe School); Bladen County Training School; Bladenboro Gymnasium, from Southeastern Constr. Co., 205 E. Bland St., Charlotte, **$288,965.** L. N. Boney, Wilmington, archt.

Tenn., Memphis—SHOP—Memphis Light, Gas & Water Div., 179 Madison Ave., Mar. 9, general contract shop expans., Beale and Myrtle Sts., from W. A. Whitsitt, 795 Walnut St., **$219,000.** Norton & Rice, 165 Baptist Hospital Bldg., archts.

Tex., Houston — SCHOOL—Houston Independent School Dist., 1600 Washington St., Mar. 9, brick, hollow tile, concrete Trinity Gardens School addn., concrete slab fdn., from Farnsworth & Chambers, Inc., P. O. Box 74, **$329,658.** Est. $325,000. CD 2/23.

Que., Hull—SCHOOL—Comn., L. Laverdure, secy., Mar. 8, Laverdure School addn. and repairs, School 69, Desjardins St., from Ed. Brunet & Son, 41 Tracey St., Approx. **$231,330.** CD 2/17.

CONTRACTS AWARDED

La., Bunkie — SCHOOL—Avoyelles Parish School Bd., Marksville, school, to S. J. Lemoine & Co., P. O. Box 481, **$261,988,** Bids 3/7, CD 10/25.

▲ **N. Y., Middletown**—HOSPITAL—Bureau Contracts & Accounts, Albany, general contract bldg. for 640 disturbed patients, Middletown State Homeopathic Hospital to P. J. Carlin Constr. Co., 101 Park Ave., New York, Zone 17, **$3,119,000.** Bids 2/8. CD 2/14, under LB.

Wash., Auburn—SCHOOL—High School Dist. 408, 9420 S. 240 Pl., general contract high school to C. Nilson & Son, 525 St. N. E., **$564,825.** Bids 2/29. CD 2/1.

COMMERCIAL BUILDINGS

BIDS ASKED

Pa., Midland—OFFICE—B. A. 4/3—United Steel Workers of America, Midland, 2 story, bsmnt., 48x115 ft., steel, brick, stone union office bldg. $250,000. R. F. Beatty, Potters Saving & Trust Bldg., East Liverpool, O., archt. CD 12/1/47.

Pa., Meadville—HOME—B. A. 4/5—Methodist Erie Conference Inc., 707 Sassafras Ave., Erie, 2 story, bsmnt., brick, stone home for aged. $500,000. Duane Lyman & Assoc., 505 Delaware Ave., Buffalo, N. Y., archts. CD 12/1.

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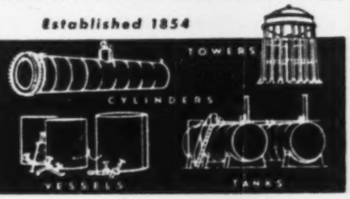

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Wis., Milwaukee—CLUBHOUSE—B. A. 4/5—Milwaukee Boys' Club, 1023 N. Jackson St., Zone 2, 1 and 2 story, part bsmnt., 114x244 ft., steel, brick, block clubhouse. $650,000. Fitzhugh Scott & Fitzhugh Scott Jr., 724 E. Mason St., Zone 2, archts.

N. C., Goldsboro—HOSPITAL—B. A. 4/6—Wayne Memorial Hospital, c/o Allan J. Maxwell, archt., Borden Bldg., 100-bed hospital addn. Plans deposit $50.

Tex., Spring Branch—SHOPPING CENTER—B.A. 4/7—Ruland Shopping Center, Spring Branch, via Houston, shopping center sect., incl. theatre, $375,000. Charles Kiefner & Wiley Vale, 3501 Buffalo Dr., Houston, archts., Jack Corgan, 2008 Jackson St., Dallas, theatre archt. CD 3/10.

Wash., Toppenish — HOSPITAL — B.A. 4/7 — Central Memorial Hospital Assn., Toppenish, 1 story, frame hospital, $275,000. Plans deposit $30. T. F. Hargis, Jr., Miller Bldg., Yakima, archt. CD 3/17/49.

▲ **Ill., Chicago**—APARTMENT—Bids Asked—Owner, c/o Leo Hirschfeld, archt., 120 S. LaSalle St., Zone 3, 17 story, 54 unit apartment. **$1,360,000.**

Ill., Watseka—CHURCH—Bids Asked—Calvary Evangelical Church, 1 story, bsmnt., brick, stone church. $250,000. Albert Heino & Assocs., 7919 S. Ashland St., Zone 20, archts.

▲ **Ind., Gary**—APARTMENT—Bids Asked—Tri-City Village, Inc., 2136 Rhode Island St., 94 apartment bldgs. incl. 380 units, $1,500,000. Paul Cripe, Lemke Bldg., Indianapolis, archt. CD 12/21.

Minn., Duluth—CHURCH—Bids Asked—Helennic Orthodox Church, church. $500,000. Peter Camburas, 150 W. Madison St., Chicago 2, Ill., archt. CD 6/3.

▲ **Tex., Odessa**—HOTEL—Bids Asked—Civic Hotel Corp., Odessa, 7 story, bsmnt., 150-room rein.-con. frame, brick, tile hotel, 2 electrical passenger elevators, 1 freight elevator, steam heating. $1,000,000. Walter H. Ahlschlager, 212 S. St. Paul St., Dallas, archt. Zumwalt & Vinther, Mercantile Security Bldg., Dallas, and Herman Blum, 2812 Fairmount St., Dallas, engrs. CD 10/4, under LB.

SOON LETS CONTRACT

Mich., Hamtramck—SCHOOL—Ukranian Greek Catholic Church, c/o Herman & Simons, archts., 804 Transportation Bldg., Detroit, soon lets contract 2 story, bsmnt., 125x145 ft., masonry, rein.-con., steel school and auditorium, $350,000.

Mo., Kennett—HOTEL—Kennett Hotel Co. c/o Kennett Chamber of Commerce, soon lets contract 6 story hotel, Anker F. Hansen, 212 Adams St., Memphis, Tenn., archt.

Neb., Hastings—DORMITORY—Hastings College, Hastings, soon lets contract men's dormitory. $75,000. Davis & Wilson, 225 Stuart Bldg., Lincoln, archts. CD 3/10.

CONTRACTS AWARDED

Conn., Deep River — HOUSING — Samuel Sbona, 23 Winter Ave., 30 frame homes, 6 acre tract Village and Bridge Sts., Owner builds. **$250,000.** CD 3/10.

Ind., Fort Wayne—HOME—Bd. Trustees Fort Wayne Children's Home of Evangelical & Reformed Church, Maysville Rd., general contract two 2 story, stone, modernized Georgian Style in Flemish bond face dormitories; one 2 story admin. bldg., to Mid States Constr. Co., 1001 E. Barry St. Approx. **$510,000.** Awarded 3/7. A. M. Straus, 415 Cal-Wayne St., archt. CD 9/23/46.

▲ **Ia., Cedar Rapids**—APARTMENTS—Oakland Court Corp., 105-10 St., N. E., apartments, 1500 Oakland Rd. N. E., and 1300 Oakland Rd. N. E., to Skogman Constr. Co., Inc., 105-10 St. N. E., **$550,000** and **$575,000**, respectively.

Ky., Louisville—APARTMENTS—Emery Kinhead Constr. Co., 614 E. Broadway, Zone 3, twenty 4 unit, 2 story, asbestos apartments, to Emery Kinhead Constr. Co., 614 Broadway, E., Zone 3. Approx. **$500,000.** Awarded 3/9. J. Clay Murphey, 614 E. Broadway, Zone 3, archt. Earl Reagan, 614 E. Broadway, Zone 3, engr.

Md., Towson—RESIDENCES—Ridgeleigh Constr. Co., 514 St. Paul Pl., Baltimore, thirty-two 2 story, 18x27x28 ft., brick residences, concrete fdn., White Oak Ave., Ridgeleigh Development, separate contracts. **$250,000.**

Neb., Lincoln—DWELLINGS—Northwest Realty Co., 2141 N. Cotner Blvd., 22 dwellings. Owner builds. **$260,000.**

▲ **N. Y., New York**—APARTMENT—Owner, c/o contractor, 22 story, penthouse apartment, Madison Ave., 71 and 82 Sts., to Paul Tishman Co., Inc., 595 Madison Ave. Approx. **$6,500,000.** George F. Pelham, 19 W. 44 St., archt.

▲ **O., Toledo**—DWELLINGS, etc.—Kenwood Gardens, Inc., 740 Leader Bldg., Cleveland, 20 dwellings 2700 block, Central Ave. between Bellevue and Cheltenham Sts.; 52 dwellings, 2700 block Central Ave. between Bellevue and Cheltenham Aves. 32 garages. Owner builds. **$3,196,000.**

▲ **O., Youngstown-Boardman**—HOMES—Melrose Constr. Co., 355 Melrose Ave., 220 "Ranchette" prefabricated houses in Youngstown-Boardman area. Owner builds. **$1,958,000.**

Tenn., Memphis—BANK—Union Planters National Bank & Trust Co., Emmett J. House, vice pres., Union Planters Natl. Bank Bldg., 5 story bank addn., to Dougherty-Liddell Constr. Co., 1360 E. McLemore Ave.***electrical work to Dawkins Electric Co., 26 N. 2nd St.***heating, ventilating, air conditioning, and plumbing to H. W. Lancaster & Son, 797 Roland St. Approx. **$900,000.** Hanken & Heyer, Commerce Title Bldg., archts. Leo S. Weil & Walter B. Moses, Audubon Bldg., New Orleans, La., consult. engrs.

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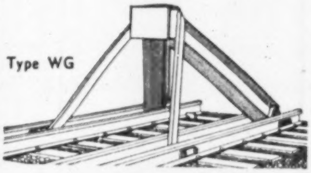

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Tex., Baytown—DWELLINGS—Basswood Development Co., Baytown, 38 dwellings. Owned builds. Approx. **$275,000**. CD 3/3.

Tex., Dallas—DWELLING—Moody & Tips. 701 Forest Ave., 150 dwellings. 400 acre site. Owner builds. Approx. **$775,000**. CD 3/3/49.

Tex., Houston—DWELLINGS—Deerpath Homes, Inc., 4215 York St., 100 addnl. dwellings, in Lisbon area. Owner builds. Approx. **$475,000**. CD 3/2.

Tex., Houston — HOUSING — Frank W. Sharp, 2202 Rosslyn St., housing in area east of Wesleyan Addn. Owner builds. Approx. **$700,000**. CD 11/28.

Tex., Houston—DWELLINGS—Ruberfield Realty Co., 5223 Humble Rd., 35 dwellings, off Stassen St., to Texas Building Real Estate Corp. 5223 Humble Rd. Approx. **$265,000**. CD 3/2.

Tex., Houston—DWELLINGS—Mrs. Vernie G. Glenn, 413 Gulf Bld., 29 dwellings. Owner builds. Approx. **$250,000**. CD 3/6.

INDUSTRIAL BUILDINGS

BIDS ASKED

▲ **Mich., Wyandotte**—LABORATORIES—B.A. 4/12—Wyandotte Chemical Co., Wyandotte, 3 story, T-shaped, 170×320 ft., rein.-con., structural steel, masonry research laboratories, $1,500,000. H. F. Stanton, Free Press Bldg., Detroit, archt.

N. Y., Syracuse—FACTORY—B.A. 5/20—The Carrier Corp., S. Geddes St., (selected list bidders) factory. Lockwood Greene Engineers, 10 Rockefeller Plaza, New York, Zone 20, engrs.

Ill., Chicago—PLANT—Bids Asked—Puritan Co. of America, 1200 W. 37 St., Zone 9, (selected list contractors) 1 story, 30,000 sq. ft., steel, brick, concrete plant addn. $165,000. A. Epstein & Sons Co., 2011 W. Pershing St., Zone 9, archt.

CONTRACTS AWARDED

Ky., Louisville — WAREHOUSE — National Distillers, A. M. S. Div., 120 Broadway, New York, N. Y., design & construction whiskey warehouse, to Sanderson & Porter, 52 William St., New York, N. Y., Approx. **$600,000**. Awarded 3/8. CD 3/9.

Ky., Lynch—SERVICE—United States Coal & Coke Co., Frick Bldg., Pittsburgh, Pa., service bldg., shop, one 3,500 ton and one 1,300 ton storage bin, 4,000 ft. conveyor sys., to James Stewart Corp., 231 S. LaSalle St., Chicago, Ill., and G. C. Johnson Co., Welch, W. Va., **$800,000**.

Tenn., Memphis—BAKERY—Colonial Baking Co., N. Cleveland and Larkin Sts., bakery addn., to Walker & Son, c/o archts. Approx. **$68,000**. Walk C. Jones-Walk C. Jones, Jr., 1215 Poplar Ave., archts.

Tex., Dallas—PRINTING SHOP—Reinhard Oil News Co., 2411 Pearl St., printing shop, to Church & Barry Constr. Co., Construction Bldg., Approx. **$70,000**. Walter W. Ahlschlager, 212 S. St. Paul St., archt.

Tex., Houston — INDUSTRIAL — Harvey Wilson Drive Corp., 7651 Southern St., steel, concrete industrial bldg., Harvey Wilson Dr. area, own forces. Approx. **$75,000**. CD 2/23.

Tex., Houston—WAREHOUSE—Gardner Salvage Co., 615 Preston St., warehouse. Owner builds. Approx. **$160,000**. CD 3/3.

UNCLASSIFIED

BIDS ASKED

N. Y., New York—ELECTRICAL INSTALLATION—B.A. 4/3—At office Chief Engineer, Port of New York Auth., 111 8th Ave., Zone 11, electrical installation for West 179 Street Tunnel, George Washington Bridge, Contr. GWB-14. Plans deposit $25.

Georgia—RURAL DISTRIBUTION LINES—B.A. 4/4—Okefenoke Rural Electric Membership Corp., Nahunta, 194 mi. rural distr. lines and 28.5 mi. conversion in Baker, Wayne, Nassau, Camden, Duval, Glynn, Brantley, Ware and Carlton Counties. Plans deposit $10. CD 6/1.

† **Tenn., Oak Ridge**—PARKING AREA—B.A. 4/20—U. S. Atomic Energy Comn., P. O. Box E. Attention: R. J. Dunbar, Engr. Div., imprvs. of North Portal Parking Area, Inv. No. 401-50-11A. Plans deposit $5.

SOON LETS CONTRACT

S. C., Greenwood—SWIMMING POOL—James C. Hemphill, archt., Greenwood, soon lets contract swimming pool for Connie Maxwell Children's Home, Greenwood. Plans deposit $50.

LOW BIDDERS

Ky., Gilbertsville—CABINS—Commonwealth of Ky., Div. Purchases, Frankfort, Mar. 9, constr. 10 vacation cabins, Kentucky Dam State Park, Request No. S-1439, from Fox Lumber Co., Nortonville, **$56,965**. J. B. Rieman, ch. engr.

▲† **Oregon**—RAILROAD RELOCATION—U. S. Eng., 628 Pittock Block, Portland, Zone 5, Mar. 15, construct sect. of Southern Pacific R. R. relocation and sect. of Oregon State Hy. No. 58 relocation, incl. logging, clearing, grubbing, roadway gradig, detours, construct all drainage structures, channel changes and rights-of-way fences, between Railroad Stations L 1760 plus 00 and L 2006 plus 00 and between Hy. Stations 1760 plus 00 and 2019 plus 00 approx. 4 mi. south, 5 mi. east of Meridian Dam axis in southeast direction approx. 4½ mi., Lane Co., Serial No. CIVENG 35-026-50-242, from Guy F. Atkinson Co., Cascade Bldg., Portland, **$2,846,611**. Est. $3,104,500. CD 2/7.

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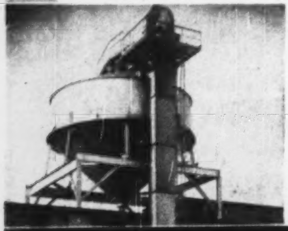

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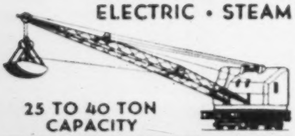

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† **Oregon**—RAILROAD RELOCATION—U. S. Eng., Pittock Block, Portland, Zone 5, Mar. 15, furnishing ballast, ties, switches, rail and appurtenances and construct track from clear point at beginning of Southern Pacific R. R. relocation to Station 1274/ml 00 in connection with construction of Lookout Point Reservoir, Lane Co., CIVENG 35-026-50-246 from Utah Constr. Co., Channel St., Richmond, Calif., $672,760. Est. $597,768. CD 2/8.

CONTRACTS AWARDED

▲ **N. Y., New York**—RAMP—Port of New York Auth., 111 8th Ave., Zone 11, steel, concrete ramp connecting Lincoln Tunnel entrance with Bus Terminal, to Corbetta Constr. Co., 220 E. 42 St., Zone 17, $1,221,700. Bids 2/20, awarded 3/7. CD 2/23, under LB.

PROPOSED PROJECTS

WATER SUPPLY

Ark., Magnolia—Magnolia Water System Comn., Magnolia, imprv., exten. city's water sys. $235,000. Marion L. Crist & Assoc., Union Life Bldg., Little Rock, consult. engrs.

Calif., Napa—City, City Hall, voted $150,000 bonds, exten. 30 in water mains to Napa State Hospital. J. C. McDonald, City Hall, city engr. CD 2/6.

Colo., Baker Addn. (near Denver)—Baker Metropolitan Water & Sanitation Dist., 6604 N. Federal Blvd., Adams Co., voted bonds water transmission and distr. mains, N. Federal Blvd. between 64 and Westminister St. $150,000. Damon Runyon Longmont, archt. and engr. CD 2/2.

Ky., Mt. Sterling—Kentucky Water Service Co., Somerset, rehabilitation filter beds, wash water pump and exten. Approx. $350,000. Howard K. Bell, 553 S. Limestone St., Lexington, archt.

La., Hammond—City, c/o City Secretary, City Hall; voted bonds, Feb. 28, WW. imprvs. $200,000. CD 2/13.

▲ **Mass., Cambridge**—City Water Bd., Cambridge, Wm. H. McGinness, clk., water supply imprvs., incl. replacing 2 water mains, Fresh Pond to Lexington Ave., and Huron Ave. and Standish St., separation coagulation and sedimentation facilities, equipping electric pumping station, constr. maintenance plant. $1,250,000. CD 2/25/46.

Neb., Omaha—Metropolitan Utilities Dist., 18 and Harney Sts., addnl. pumping facilities at Walnut Hill Station, $176,550, Burns & McDonnell Eng. Co., 95 and Troost Sts., Kansas City, Mo., and consult. engr.; building alterations and water booster pumping equip., $80,000, J. C. Detweiler, c/o owner, water engr.

Pa., Etna (Br. Pittsburgh)—Comrs. Shaker Twp., 1107 Mt. Royal Blvd., Etna, 1 m. g. water softening plant, Shaler Twp. near here. $100,000. W. J. Murdoch, 1200 Standard Life Bldg., Pittsburgh, engr.

Tex., Galveston—City; bond election Apr. 15, WW sys. rehabilitation, expansion $800,000. George H. McDaniel, city engr.

Tex., Mineral Wells—City, George D. Barber, mayor, water distr. sys. addns., incl. mains, moving booster pump, construct bldg. to house pump and 50,000 gal. steel elevated tank. $162,000. Joe J. Rady, 811 Insurance Bldg., Fort Worth, consult. engr.

Tex., Mission—City, voted bonds, water supply, storage, $125,000; c.i. water lines, $75,000. CD 3/3.

Tex., Rosebud—City, B. D. Wheelis, mayor, WW imprvs., incl. plant distr. sys. imprvs. $123,585. J. H. Flood & Co., 2906 Franklin St., Waco, consult. engrs.

Tex., Rosenberg—City, M. E. Parrott, mayor, voted bonds, WW sys. extens., imprvs., $131,000.

N. S., Halifax—Halifax Co., Halifax, water sys., Herring Cove, $35,000; water sys., Fairview, $242,142. Col. F. C. Wightman, Amherst, engr.

Que., Three Rivers—Municipality, 7 m.g. reservoir, $200,000. P. E. Dufresne, City Hall, city engr.

SEWERS, WASTE DISPOSAL

Ark., Gurdon—City, plans by Marion L. Crist & Assoc., Union Life Bldg., Little Rock, sanitary sewer imprvs. $115,000. CD 7/17/47.

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., 501 Hall of Records, sanitary sewers in Hodges Ave., Arcadia, $86,400; sanitary sewers in Tyler Ave., El Monte C. I. 1355, $204,000. C. E. Arnold, co. engr.

Conn., Groton—Boro, Dpt. P. Wks., Town Hall, brick, concrete sewage treatment plant, disposal plant. $400,000

Kan., Ft. Scott—City, City Hall, voted $300,000 bonds Feb. 28, sewers and sewage plant. CD 1/28/46.

La., Hammond—City, c/o City Secretary, City Hall, voted bonds Feb. 28, sewage disposal plant, treatment plant. $350,000. CD 2/13.

▲ **La., Lake Charles**—Bd. Comn. First Sewerage Dist. of City of Lake Charles, P. W. Kiplinger, pres., sanitary sewer collection lines to serve newly annexed area of city. $1,500,000-$2,000,000. F. Shutts' Sons, 324 Pujo St., consult. engrs.

Mich., Pontiac—City, City Manager, sewage treatment sys. exten. incl. humus tank, equipment revision, relief of storm sewer. $106,000. CD 5/2/45.

N. Y., North Tonawanda—City, trunk sewer, pumping station and treatment plant. $150,000.

N. Y., Rochester—Brighton Sewer Dist. 2, Rochester, Allen's Creek Treatment Plant Addn. $457,900.

Pa., Sharon—City, garbage disposal plant. $225,000. CD 7/16/46.

Pa., West Point—Sharp & Dohme, 640 N. Broad St., Phila., sewage treatment plant. Approx. $150,000. Albright & Friel, Inc., 121 S. Broad St., Phila., consult. engr.

Tex., Dallas—Edward T. Dicker & Assoc., 101 Laurel Land Rd., sanitary sewers, off Harry Hines Blvd., in 3,000 acre plot. $150,000.

Tex., Houston—Max Krauss & Alexander Zager, 2nd Natl. Bank Bldg., sanitary sewers, $60,000 storm sewers, $50,000, in Shepherd Gardens Apartment area, north of White Oak Bayou.

Tex., Mission—City, voted bonds, sewage disposal unit, $75,000 sanitary sewer lines, $125,000. CD 3/3.

Wash., Benton City—Town, Town Hall, sewerage sys., treatment plant, $140,000. G. D. Hall, Larson Bldg., Yakima, consult. engr.

Wash., Montesano—City, City Hall, disposal plant, $100,000.

▲ **Wis., Green Bay**—Hoberg Paper Mills, Inc., 800 Elm St., pollution abatement plant, $1,250,000.

N. B., Grand Falls—Municipality, sewers to complete work commenced summer of 1949. $100,000. J. Bateman, Town Hall, engr.

BRIDGES

Connecticut—State, G. Albert Hill, hy. comr., Hartford,
Newtown—concrete, steel single span hy. bridge Alpine St. relocation of U. S. Rt. 6, $125,000.

Tolland—rigid frame steel bridge Wilbur Cross Parkway, $200,000.

Vernon—rigid frame, concrete, steel hy. bridge, Wilbur Cross Parkway, $260,000. Joseph D. Drury, State Office Bldg., Hartford, engr. CD 3/5/45.

Nebraska—State Dpt. Roads & Irrigation, Lincoln,
Beatrice—bridge over Blue River, $500,000. F. H. Klietsch, c/o owner, state engr.

Okla., Okmulgee—Okmulgee Co., Earl J. Street, chn. Bd., Okmulgee, 250 ft. concrete girder, steel truss bridge across Deep Fork River, $79,650; 150 ft. concrete girder and steel truss bridge across Montezuma Creek, $46,200. Sullivan & McGoodwin, Courthouse, engrs.

▲ **Tex., Conroe**—Montgomery Co., Conroe, bridge and road construction, Precincts 1, 2, 3, and 4, $1,250,000 each.

▲† **Wash., Hanford**—Atomic Energy Comn., 1901 Constitution Ave. N. W., Wash., D. C., 650 ft. bridge over Yakima River with main concrete arch 215 ft. long to replace present structure. $1,500,000. CD 2/6/48.

STREETS AND ROADS

Arkansas—State Hy. Dpt., Little Rock,
Carroll Co.—grav. 6 mi. Hy. 21 green Forest North $146,000. Alfred E. Johnson, Little Rock, engr. (Correction—estimated cost.) CD 3/9.

Colo., Denver—City and Denver Co., c. conc. Alley Paving Dist. 230, $54,760; c. conc., grav. imprvs. in several city streets Dist. 166, $193,600. Terry Owens, city engr.

Connecticut—State, G. Albert Hill, hy. comr., Hartford,
Woodstock and Putnam—c. conc. hy. about 11,000 lin. ft. Rt. 93, incl. bridge over Pachaug River, $250,000. J. D. Drury, State Office Bldg., Hartford, engr.

Kan., Eastborough (Wichita P. O.)—City of Eastborough, 236 N. Green St., paving, $175,000. H. R. Hunter, Derby Bldg., Wichita, consult. engr.

N. J., Trenton—City, City Hall, E. State St., repaving 8 streets, wid'n. Barlow St. and repaving city crematory yard. $500,000. Joseph E. English, city engr.

Tex., Dallas—Edward T. Dicker & Assoc., 101 Laurel Land Rd., street constr. and paving, off Harry Hines Blvd. in 3000 acre plot. $200,000.

Tex., Galveston—City, bond election Apr. 15, street paving, $600,000. George H. McDaniel, city engr. CD 12/5/45.

Tex., Houston—Harris Co., Courthouse, repairing, patching, reconditioning and asph. surf. various roads, Precinct 2, $100,000; Precinct 4, $90,000; Precinct 5, $80,000. J. M. Nagle, City Hall, engr.

Tex., McAllen—City, city-wide street paving, imprvs. $500,000. Sigler, Clark & Winston, Weslaco, consult. engrs.

Tex., Mission—City, W. H. Braden, mayor, voted bonds, street imprvs., paving, $100,000. CD 3/3.

Tex., Nixon—City, Dr. John F. Wheeler, mayor, Nixon, No. 1, asph. wearing surf. on existing concrete slab; No. 2, asph. paving on unimproved streets with concrete curb and gutter for both. $240,000. Marvin C. Turner, Nalle Annex Bldg., Austin, consult. engr.

Tex., Rosenberg—City, voted bonds, street imprvs., paving, $275,000.

Tex., South Houston—Town, South Houston, bond election Apr. 4, street imprvs., gravel and asph. paving, $175,000. Freese, Nichols & Turner, National Standard Bldg., Houston, consult. engrs. CD 1/23

Alaska, Douglas—Town, Town Hall, surf. 2,450 ft. streets, 2,390 ft. water mains and 4,610 ft. sewers, Proj. 50-A-4. F. J. Toner, Juneau, consult. engr.

EARTHWORK, WATERWAYS

▲ **Tex., Galveston**—City, bond election Apr. 15, drainage sys. expansion **$1,500,000**. George H. McDaniel, city engr. CD 12/5/45.

▲† **Alaska**—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, 1,420 ft. exten. to wharf at Anchorage, with dredging, **$3,556,000**; small boat basin, Seldovia, **$364,700**; small boat harbor, Homer, **$353,500**; small boat basin, Ninilchik, **$125,000**; stabilization rock revetment along Talkettna River at Talkettna, **$46,000**.

P. E. I., Charlottetown—Province of Prince Edward Island, Charlottetown, land clearance and drainage of marsh lands. **$100,000.** Dpt. Agriculture, Charlottetown, engr.

AIRPORTS

Neb., Columbus—AIRPORT—City, airport imprvs. **$125,000.** B. L. Gilmore, city engr.

Tex., Canyon—AIRPORT—West Texas State Teachers College, Canyon, plans by M. O. Carder, Amarillo (consult. on bldg.) 4,200 ft. paved runway, 2 graded runways, 4,300 and 3,200 ft., hangar and terminal bldg. **$100,000.**

▲ **Tex., San Antonio**—AIRPORT IMPRVS.—City, City Hall, Military Plaza, plans by Atlee B. & Robert M. Ayres, Transit Tower, administration bldg., **$1,000,000**; remodeling feeder lines bldg. now serving as a terminal, **$85,000**; sanitary and storm sewers, drainage **$70,000** street constr., paving, **$75,000**; taxiways not connecting instrument freight loading, **$150,000.** Frank T. Drought, 117 W. Pecan St., consult. engr. CD 3/2/50 and CD 10/29/47.

Que., Rouyn—AIRPORT IMPRVS.—Municipality, airport imprvs., clearing, stumping, landing strip, etc. **$100,000.** J. Brunet, City Hall, city engr.

LATIN AMERICA

Mexico, Isla de la Piedra—Pemex, Juarez, 104, Mexico, D. F., plans 3 oil deposit warehouses. **$250,000.**

Mexico, Mexico City—Cia Hulera El Palmer, S. de R. L., Calle 17, No. 72, Col. Pro-Hogar, Mexico, D. F., plans foam latex style rubber factory. **$400,000.**

Mexico, Mexico City—Conciertos Daniel, Jose Marroqui, 28-405, Mexico, D. F., plans concert theatre. **$300,000.**

Mexico, Mexico City—Ateno Espanol, I. la Catholica, 29, Mexico, D. F., plans theatre. **$300,000.**

Mexico, Mexico City—Fabrica de Loza El Anfora, S. A., Apartado Postal 508, Mexico, D. F., plans porcelain sanitary furniture factory. **$300,000.**

Mexico, Mexico City—Jorge Henriquez Guzman, Paseo de la Reforma, 17, Mexico, D. F., plans 20 story office-store bldg. **$750,000.**

Mexico, Vera Cruz—Mexican Govt., Sria. de la M., Mexico, D. F., Mexico, plans naval academy. **$600,000.**

Mexico, V. Gustavo A. Madero—Cia Vulcanizadora Electrica, S. A., Santiago Atzcùalco, 2481, Villa Gustavo A. Madero, D. F., Mexico, plans accumulators box factory. **$250,000.**

PUBLIC BUILDINGS

Ariz., Mesa—HIGH SCHOOL—Mesa High School Dist., City Hall, high school, **$819,000.**

Ark., Fayetteville—HIGH SCHOOL—Fayetteville School Bd., Fayetteville, plans by Paul Young Jr., Fayetteville, high school, **$600,000.**

▲ **Calif., Los Angeles**—ADMINISTRATION—Los Angeles Bd. Educ., 1425 S. San Pedro St., plans by George M. & Robert Lindsey, 6311 N. Figueroa St., 107,000 sq. ft. rein.-con. administration bldg., at East Los Angeles Junior College, East Los Angeles, **$1,300,000.** CD 7/8/48.

▲ **Calif., Modesto**—HIGH SCHOOL—Modesto Bd. Educ., 14 and I Sts., plans by Harry J. Devine, 1012 J St., Sacramento, 1 story, rein.-con. Thomas Downer High School, **$1,000,000.** CD 11/11.

Calif., Monrovia—CITY HALL, etc.—City, **$487,000** bond election Apr. 11, city hall and library. William Ainley, 999 E. Wildrose Ave., archt. CD 2/9.

▲ **Conn., Norwalk**—HOUSING—City of Norwalk Housing Auth., S. C. Shaugnessy, chn., Washington Village, 220 family unit garden apartments, **$2,000,000.**

▲ **Conn., Stratford**—SCHOOLS—Town Bd. Educ., Roland T. Yale, chn., Stratford, brick, steel, concrete 12 classroom Junior High School, southern part of town, **$500,000**; brick, steel, concrete 24 classroom Junior High School, Nichols Ave. **$1,000,000.** CD 7/25/47.

Del., Dover—SCHOOL—State Bd. Educ., Dover, plans by Victorine & Samuel Homsey, 917 Gilpin Ave., Wilmington, masonry training school for Negroes. **$650,000.** CD 9/23.

▲ **Ga., Augusta**—HOUSING—Augusta Housing Auth., c/o Eve & Stulb and Kuhlke & Wade, archts., Campbell Bldg., 275 housing units for Negroes, Proj. 3. Approx. **$1,000,000.** CD 11/22.

▲ **Ga., Augusta**—HOUSING—Augusta Housing Auth., c/o Scroggs & Ewing, F. Arthur Hazard and E. Lynn Drummond, archts., S. F. C. Bldg., 250 housing units for whites, Proj. 2. Approx. **$1,000,000.** CD 11/22.

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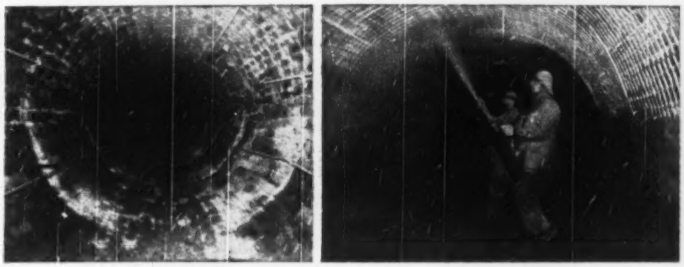

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Ga., Augusta—HOUSING—Augusta Housing Auth., c/o Willis Irvin, Helen S. Irvin & Lyman H. Roberts, archts., 722 Greene St., 225 housing units for Negroes, Proj. 1, Approx. **$750,000.** CD 11/22.

Ill., Cicero—HIGH SCHOOL—School Dist. 201, 2451 Austin Ave., plans by J. Zelenka & Assoc., 2331 Lombard St., 4 story, rein.-con., brick high school addn. **$400,000.**

▲ **Ill., Granite City**—GYMNASIUMS, etc.—Consolidated High School Dist. 159 (The Granite City Community High School) of Madison Co., Paul A. Grigsby, supt., Granite City, 2 gymnasiums, one for boys and other for girls, permanent sports stadium, bank practice and instruments storage bldg., small theatre for speech dept. 5 classrooms addn., high school, **$1,291,000.**

Ind., Hammond—GYMNASIUM—School Bd. Trustees, 5938 Hohman Ave., plans by Hutton & Hutton, 5231 Hohman Ave., steel, brick, gymnasium addn., Irving Junior High School, **$400,000.** CD 5/20/48.

Ind., Kendallville—POWER PLANT IMPRV.—City, municipal power plant imprv. incl. 6,000 kv. turbo-generator; remodel electrical distr. sys. **$500,000.** Boyd E. Phelps, engr.

▲ **Ind., New Albany**—HOSPITAL—Floyd Co. Bd. Hospital Trustees, 1104 E. Main St., plans by Hawkins & Walker, Elsby Bldg., 100 bed, brick hospital, **$1,100,000.**

▲ **Ia., Des Moines**—AUDITORIUM—City Memorial Auditorium Comn., City Hall, $2,500,000 bond election Mar. 27, memorial auditorium, **$5,250,000.** Tinsley, Higgins & Lighter, 526 Liberty Bldg., archts. CD 12/28/45.

Ia., Independence—HOSPITAL—State Bd. Control, 12 and Court Sts., Des Moines, plans by Ralph Arnold, state archt., 5711 Waterbury Circle, Des Moines, kitchen, dining room addn., **$300,000**; employees residence hall, **$400,000**, Independence State Hospital.

Ia., Mitchellville—SCHOOL, etc.—State Bd. Control, 12 and Court Sts., Des Moines, plans by Ralph Arnold, state archt., 5711 Waterbury Circle, Des Moines, school and administration bldg., Mitchellville Girls Training School, **$425,000.**

Kan., Topeka—SCHOOL—Bd. Educ., 415 W. 8 St., plans by A. Cooledge, New England Bldg., grade and junior high school. **$450,000.** 11/22.

Ky., Frankfort—HOUSING—City of Frankfort Municipal Auth., plans by Oberwarth & Livingston, 301 W. 2 St., and Meriwether & Marye, 236 Short St., Lexington, 75 unit apartment. **$500,000.**

▲ **Mass., Belmont** — HOSPITAL — Commonwealth of Mass., Dpt. Mental Health 100 Nashua St., Boston, plans by Abbott & Assoc., 18 Tremont St., Boston 250 bed brick, concrete, steel hospital addn. M-214, Walter E. Fernald School, **$2,000,000.** CD 8/1.

Mich., Detroit—SCHOOL—Bd. Educ., 1354 Broadway, plans by Lane, Davenport & Meyer, 806 Farwell Bldg., masonry, concrete Dixon School, **$400,000.** CD 8/25/44.

▲ **Mich., Detroit**—CIVIC AUDITORIUM—City, City Hall, civic auditorium, Woodward and Bates Sts. **$2,500,000.**

▲ **Mich., Detroit**—CONVENTION HALL—City Planning Comn., Griswold Bldg., masonry, concrete, structural steel, convention hall. **$3,000,000.**

▲ **Mich., Ecorse**—HOUSING—Ecorse Twp. Housing Comn., Ecorse, plans by Otis Winn, 528 Michigan Bldg., Detroit, 200 unit housing, Ecorse Twp., **$1,500,000.**

Mich., Houghton—UNION HALL—Michigan College of Mining & Technology, Houston, plans by Ralph Calder, 1212 Kales Bldg., Detroit, masonry, structural steel, rein.-con. Memorial Union Hall. **$561,800.** CD 7/11/47.

▲ **Mich., Pontiac**—HOUSING—Pontiac Housing Comn., c/o Otis Winn, archt., 582 Michigan Bldg., Detroit, 600 unit housing, **$5,000,000.**

▲ **Mich., South Field Twp.**—SCHOOL—Bd. Educ., McKinley School, plans by Jensen & Keough, 15875 James Couzens Hy., rein.-con., masonry, high school addn., Units B, C, D. **$1,000,000.**

▲ **Minn., Duluth**—SCHOOL—Bd. Educ., H. J. Fosberg, clk., plans by A. R. Melander, 603 Alworth Bldg., west End School to replace Lincoln Grade School. **$1,000,000.** CD 6/30/47.

Miss., Laurel—HOUSING—City of Laurel Housing Auth., Laurel, plans by L. L. Brasfield, Kidder Bldg., Meridian, 125 housing units. Approx. **$650,000**, CD 10/24.

Miss., Picayune—HOUSING—Town of Picayune Housing Auth., Picayune, plans by Charles Krouse, WMOX Bldg., Meridian Bldg., 100 housing units, **$900,000.**

▲ **Miss., State College**—CHEMISTRY, etc.—State Building Comn., New Capitol Bldg., Jackson, chemistry and chemical regulatory bldg. at Mississippi State College. **$1,000,000.** CD 2/13/47.

N. M., Albuquerque—STUDENT UNION—University of New Mexico, Albuquerque, plans by Eugene Nickell, engr. and archt., c/o owner, student union bldg. **$750,000.**

▲ **N. C., Raleigh**—SCHOOLS—Bd. Comrs. Wake Co. John P. Swain, chn. Bd., Raleigh, bond election April 20, schools in city and county. **$4,250,000.** CD 3/10.

▲ **Okla., Stillwater**—CHEMISTRY, etc.—Oklahoma A. & M. College, Stillwater, plans by Phillip Wilber, Stillwater, 67,500 sq. ft. chemistry bldg. and equip., **$750,000**; 49,000 sq. ft. classroom bldg., **$500,000.** CD 8/13/45.

▲ **Tex., El Paso**—HOUSING—El Paso Housing Auth., El Paso, plans by Carroll & Daeuble, 1001 E. Yandell Blvd., and Frazier & Benner, El Paso Natl. Bank Bldg., 330 low-cost housing units, **$2,894,500**; 330 low cost housing units. **$2,894,500.** CD 9/20.

▲ **Tex., Galveston**—HOUSING—Galveston Housing Auth., City Hall, plans by R. R. Rapp, Guaranty Bldg., and D. Barthelme, 11 Wynden Dr., Houston, 150 housing units for Whites, in U. S. Customs House area, Strand, 18, Mechanic and 16 Sts. **$1,080,000**; 250 rental housing units for Negroes, adjacent Negro High School at 32 and H Sts. **$1,800,000.** Howard, Johnson & Kelley, Scanlan Bldg., Houston, consult. engrs. CD 10/4.

Tex., Llano—SCHOOL—Llano Independent School Dist., Llano, voted bonds school. **$450,000.** CD 2/6.

Tex., Lubbock—STUDENT UNION—Texas Technological College, Lubbock, plans by Atcheson & Atkinson, 204 Sanford Bldg., student union. **$500,000.** CD 12/20.

▲ **Va., Roanoke**—HOUSING—City of Roanoke Housing Auth., Roanoke, plans by Paul Hayes, 124 W. Church Ave. 600 housing units, Approx. **$1,000,000.**

Wis., Manitowoc—HOSPITAL—Manitowoc County Memorial Hospital, Inc., Manitowoc, 3 story, 2 wings hospital, **$750,000.**

Ont., Toronto—SCHOOL—Bd. Educ., C. H. R. Fuller, 155 College St., plans by C. E. C. Dyson, c/o owner, Givins School wing, 180 Shaw St. Approx. **$375,000**; Palmaston School wing, 734 Palmerston Ave. Approx. **$500,000.** CD 12/15/43.

Que., Drummondville—POST OFFICE, etc.—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by G. Brault, c/o owner, post office, public bldg., etc. Approx. **$500,000.**

COMMERCIAL BUILDINGS

Calif., Barstow — HOUSING — 11th Naval District, Pub. Wks. Office, 1220 Pacific Hy., San Diego, construct, manage, finance 20 family units for officers, 48 family uits for enlisted personnel 200 family units for civilians at Marine Corps Supply Depot.

▲ **Calif., Richmond**—RESIDENCES—C. Dudley De Velbiss Co., foot of Huntington Ave., residences off Tiburon Hy. adjacent to Trestle Glen Rd., **$1,000,000.**

▲ **Ga., Atlanta**—HOSPITAL—Georgia Baptist Hospital c/o Stevens & Wilkinson, archts., 157 Luckie St. N.W., hospital addn. **$1,750,000.**

▲ **Ill., Joliet**—APARTMENTS—Black Road Estates, c/o Leron Seron, archt., 81 N. Chicago Ave., seventy-five 300 unit apartments, **$2,500,000.**

▲ **Ky., Elizabethtown**—HOUSING—Diecks Lumber Co., Elizabethtown, one hundred and eighty 1 story, frame concrete houses. **$1,000,000.**

Ky., Louisville—RESIDENCES—Ben Kaplan, 320 S. 6 St., twenty-five, 1 story, bsmnt., brick residences, incl. garages. **$500,000.**

Mo., Pattonville — COTTAGES, etc.—Missouri Baptist Children's Home, Edgar E. Blake, supt., St. Charles Rock Rd., (U. S. 40), 7 brick, concrete cottages, auditorium-gymnasium, rein.-con. swimming pool, kitchen-dining room facility modernization, central heating plant, laundry bldg., supt. residence, Approx. **$500,000.**

N. J., Princeton—SCHOOL—Princeton University, Princeton plans by Voorhees, Walker, Foley & Smith, 101 Park Ave., New York, N. Y., Woodrow Wilson School of Public and International Affairs, **$500,000.** CD 12/6/46.

▲ **N. J., Trenton**—HOSPITAL—St. Francis Hospital, 601 Hamilton Ave., plans by Schmidt, Garden & Erikson, 104 S. Michigan St., Chicago, Ill., 348 bed hospital addn. **$3,000,000.** CD 1/6/47.

▲ **N. Y., Far Rockaway**—APARTMENTS—Gustave M. Berne, c/o Lester H. Maxon, 558 W. 34 St., New York, Zone 1, four 6 story apartments, Seagirt Ave. and Beach 20 St. **$1,860,000**; 10 six story apartments, Seagirt Ave. and Beach 20 St. **$7,000,000.**

▲ **N. Y., Forest Hills**—APARTMENTS—PM & LBC Co., Inc., c/o Arthur Weiser, archt., 240 Madison Ave., New York, Zone 16, six 6 story apartments in area bounded by Yellowstone Blvd., 66 Rd., 108 St. and 67 Ave. **$2,000,000.**

N. Y., Hollis—HOUSES—Mar-Ell Gardens, Inc., c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, 64 one family houses, 186 St. between 104 Ave. and Henderson Ave. **$565,000.**

N. Y., Jackson Heights—APARTMENT—Geffree Realty Co., c/o H. I. Feldman, archt., 415 Lexington Ave., New York, Zone 17, 6 story apartment on south side of 35 Ave. between 88 and 89 Sts. **$550,000.**

N. Y., Jamaica—APARTMENT—Selco Building Corp., c/o Philip Birnbaum, archt., 303 W. 42 St., New York, Zone 18, 6 story apartment, Wexford Terrace, east of Avon St. **$550,000.**

N. Y., New York—SCHOOL—V. Bassi, 3985 Bronxwood Ave., Zone 66, plans by Anthony J. DePace, 151 W. 46 St., Zone 19, 3 story school, Bronxwood Ave. and 225 St. **$700,000.**

▲ **N. Y., New York**—BANK—Bowery Savings Bank, 110 E. 42 St., Zone 17, plans by York & Sawyer, 101 Park Ave., Zone 17, and Edwards & Hjorth, 1267 Avenue of the Americas, Zone 19, 13 story bank addn. **$1,000,000.**

▲ **N. Y., Queens Village**—APARTMENT—United Veterans Mutual Housing Co., c/o William M. Dawling, archt., 350 Fifth Ave., New York, Zone 1, two story garden apartment in area bounded by Stronghurst Ave., Springfield Blvd., Hillside Ave. and 229 St. **$7,000,000.**

N. Y., Rego Park—APARTMENT—Samuel Lefrak, c/o Julius Fishkind, archt., 141 Broadway, New York, Zone 6, 6 story apartment, 64 Ave., west of 98 St. **$750,000.**

▲ **N. Y., Rego Park**—APARTMENT—Samuel Lefrak, c/o Julius Fishkind, archt., 141 Broadway, New York, Zone 6, 6 story apartment, 66 Ave. and 102 St., **$700,000**; 6 story apartment, Saunders St. and 64 Rd. **$935,000.**

▲ **O., Cleveland**—THEATER, etc.—E. C. Bex, 9007 Detroit Ave., plans by W. S. Ferguson, 1910 E. 26 St., 13 unit theater, bowling alley and store, 1 and 2 story, bsmnt., brick and block constr. **$1,000,000.**

O., Cleveland—DORMITORY—Case Institute of Technology, 10900 Euclid Ave., plans by Small, Smith & Reeb, 709 Swetland Bldg., 3 story bsmnt., brick, concrete dormitory. **$400,000.**

▲ **O., Youngstown**—HOSPITAL—St. Elizabeth's Hospital, 1044 Belmont Ave., 225-bed hospital wing. **$2,000,000.**

▲ **Pa., McKeesport**—HOME—Pauline Auberle Memorial Corp., plans by A. Pyzdrowski, 3410 Fleetwood St., Pittsburgh, 3 story, 51x228 ft. and 52x50 ft., T shaped and 3 story, 32x79 ft., brick, tile institutional home for boys and boiler bldg., O'Neill Blvd., **$1,000,000.**

▲ **Pa., Pittsburgh**—APARTMENT, etc.—Behrman & Passell, 5821 Walnut St., plans by Tennyson & Van Wart, 666 Washington Blvd., Zone 16, 19 story steel or rein.-con., brick on cinderblock apartment and store, Webster Ave. and Tunnel St. **$5,000,000.**

Tex., Bellaire—HOMES—Townsend Constr. Co., 3525 Westheimer St., Houston, plans by Wilson, Morris & Crain, 3330 Graustark St., 50 masonry homes in Peaceful Valley, **$675,000.**

Tex., Big Spring—COMMERCIAL CENTER—Ruland Shopping Center, Long Point Rd., Houston, plans by Wylie Vale & Charles Kiefner, 1973 W. Gray St., Houston, masonry commercial center, concrete pier and beam fdn., air-conditioning. **$600,000.**

▲ **Tex., Brownsville**—TOURIST CENTER—Ralph Killingstad, Brownsville, ranch type tourist center. **$1,000,000.**

▲ **Tex., Houston**—HOMES—Houston Private Homes, Inc., c/o Anderson Clayton & Co., Cotton Exchange Bldg., 10,000 homes. Approx. **$30,000,000.**

▲ **Tex., Houston**—DWELLINGS—A. J. Sustala & Assocs., 5524 Long St., 325 dwellings in Spring Branch Area, **$2,500,000.**

Tex., Houston—HOMES—Townsend Constr. Co., 3525 Westheimer St., plans by Wilson, Morris & Crain, 3330 Graustark St., 20 masonry homes in area of Royden Oaks, **$500,000.**

Tex., Tyler—CHURCH—Marvin Methodist Church, Tyler, plans by Shirley Simons, 1723 S. Broadway, 3 story brick church annex, concrete frame and fdn. incl. air-conditioning. **$450,000.** CD 2/27.

Utah, Salt Lake City — OPERATIONS Center—Utah power & Light Co., Kearns Bldg., Geo. M. Gadsby, pres., plans by Ashton, Evans & Brazier, 24 S. West Temple St., 2 story, 120x200 ft., brick, concrete operations center, Approx. **$500,000.**

▲ **Wash., Seattle**—APARTMENT—V. O. Stringfellow, 5616 24 Ave. N.W., plans by Grainger, Thomas & Baar, Arcade Bldg., Zone 1, 8 story Queensborough Apartment. **$1,098,300.**

▲ **Wash., Seattle**—APARTMENT—Howard S. Wright & Co., 407 Yale Ave. N., plans by John Graham & Co., Dexter Horton Bldg., Zone 4, 239 unit Northgate Apartments. **$1,755,000.**

▲ **Wash., Tacoma**—APARTMENT—Martin Apartments Inc., c/o Lamont & Fey, archts., 308 Columbia St., Seattle, Zone 4, 10 story apartment. **$1,181,800.**

Alaska, Anchorage—APARTMENT—H. Lewis, 3447 4 Ave. S., Seattle, Wash., and M. Lurie, 1500 38 St., Seattle, Wash., plans by G. C. Fields, Jones Bldg., Seattle, Wash., 84 unit Jefferson Court Apartment. **$949,000.**

Alaska, Fairbanks—APARTMENTS—J. R. Dixon, L. Nerland and R. W. Ferguson, Fairbanks, plans by Philleo Eng. Service, Fairbanks, 64 unit Dixon Apartments. **$691,200.**

▲ **Alaska, Fairbanks**—APARTMENT—R. P. Hill & A. E. Waxberg, Fairbanks, plans by Chiarelli & Kirk, 2nd and Cherry Bldg., Seattle 4, Wash., 144 unit Second and Lacey St. Apartment. **$1,694,200.**

▲ **Alaska, Fairbanks**—APARTMENT—Nelse Mortensen, 1021 Westlake Ave. N., Seattle, Wash., C. Cole, Juneau, and E. Nowell, Anchorage, plans by G. C. Field, Jones Bldg., Seattle, Wash., 272 unit Fairview Apartments. **$3,080,000.** CD 1/17.

Alaska, Fairbanks—HOUSING—P. G. Strand, Fairbanks, 73-unit Queen Court Apartment, **$854,500.** Philleo Eng. Service, Fairbanks, consult. engr. CD 2/6.

INDUSTRIAL BUILDINGS

Calif., Oakland—PLANT—Gerber Products, 801 98 Ave., 1 story, 15,000 sq. ft., concrete cereal plant. **$300,000.** John J. Gould, Financial Center Bldg., San Francisco, engr.

▲ **Ill., Joliet**—FACTORY—Caterpillar Tractor Co., East Peoria, plans by Giffels & Vallett, Marquette Bldg., Detroit, Mich., factory, incl. well, sewer treatment works, main bldg., office bldg., **$7,000,000.**

▲ **Ind., Fort Wayne**—GAS STORAGE—Northern Indiana Public Service Co., Hammond, 6,000,000 cu. ft. capacity gas storage, **$2,000,000.**

Ia., Burlington—DEPOT—Chicago, Burlington & Quincy R.R. Co., H. R. Clarke, ch. engr., 547 W. Jackson Ave., Chicago, 6, Ill., depot, **$310,000.**

Minn., Hopkins—WAREHOUSE, etc.—S & L Department Stores, 400 First Ave. N., Minneapolis, plans by Liebenberg & Kaplan, 51 S. 13 St., Minneapolis, 1 story 125,000 sq. ft. warehouse and 20,000 sq. ft. office. **$500,000.**

▲ **Mo., St. Louis**—PARKING GARAGES—Syndicate, c/o Louis D. Steiner, 275 Union Blvd., Zone 8, plans by

Arthur F. Schwarz, Chemical Bldg., 721 Olive St., Zone 1, two 4 story, bsmnt., rein.-con., brick, steel, off-street parking garage, in downtown section, $5,000,000.

N. Y., Brooklyn—INDUSTRIAL—235 Sixth Street Corp., 25 Willoughby St., Zone 1, plans by Joseph Saravis, c/o owner, 2 story industrial bldg., 213-41 6 St. $320,000.

N. Y., Far Rockaway—GARAGES—Gustave M. Berne, c/o Lester H. Maxon, archt., 558 W. 34 St., New York, Zone 1, 7 one story garages, Seagirt Ave. and Beach 20 St., $502,500.

▲ **Tenn., Lowland**—PLANT—American Enka Corp., 206 Madison Ave., New York, N. Y., plant addn., new equip. $2,000,000.

Tex., Dallas—WAREHOUSE, etc.—Howard Van Lines, Inc., 1617 N. Peak St., storage warehouse and truck terminal in Trinity Industrial area. Approx. $300,000.

Tex., Fort Worth—PARKING GARAGE—Fort Worth National Bank, c/o R. E. Harding, pres., 7 and Main Sts., plans by Preston M. Geren, 905 Neil P. Anderson Bldg., 5 story,- 105,000 sq. ft. rein.-con. parking garage, Commerce St., through to Calhoun and W. 7 St., $400,000.

Wash., Seattle—GARAGE—Security Public Market, 3 Ave. and Virginia St., 2 story garage addn. $300,000.

Alta., Edmonton—GARAGES—Edmonton Transit System, 80 St. and 117 Ave., plans by Main, Reussa & Minsos, MacCosham Bldg., garages for trolley coaches, Approx. $500,000. T. Ferrier, c/o owner, engr.

UNCLASSIFIED

Fla., Sanford—STADIUM—Sanford Stadium Auth., c/o Elton J. Moughton, archt., Sanford, football-baseball stadium. $165,000.

Illinois—PIPE LINE—Panhandle Eastern Pipeline Co., pipe line in vicinity of Pittsfield to supplement existing 3 in. line together with new control station. $125,000.

Kentucky—RURAL DISTRIBUTION LINES—Pennyville Rural Electric Co-operative, Hopkinsville, 100 mi. rural distr. lines, Todd Co., Proj. KY-26P. Approx. $100,000. Cottrell & House, 905 Stahlman Bldg., Nashville, Tenn., engrs. CD 10/22/48.

La., Lake Charles—MOTOR COURT—Owner, c/o Ed. Bailey, Lake Charles, 60 unit motor court. Approx-$100,000,

Mass., Waltham—SWIMMING POOL—Metropolitan Dist. Comn., 20 Somerset St., Boston, concrete swimming pool. $135,000. Abbott & Assoc., 18 Tremont St., Boston consult. engrs.

Miss., Sardis—PARK IMPRVS.—**Mississippi State Parks** Assn., Jackson, park imprvs., incl. boating, swimming facilities, etc. $250,000.

Missouri—RURAL DISTRIBUTION LINES—Three Rivers Electric Co-operative, Linn, 330 mi. rural distr. line and sys. imprvs., Osage Co. $700,000.

Neb., Omaha — GAS MAINS — Metropolitan Utilities Dist., 18 and Harney Sts., addnl. gas mains in vicinity 10 and Pacific Sts. area. $150,000. B. Manchester, c/o owner, gas engr.

N. D., Bismarck—SWIMMING POOL, etc.— City. City Hall, plans by H. M. Leonard, 202½ 3 St., swimming pool, bathhouse. $150,000.

Okla., Wagoner—PARK—City. J. L. Powell, mayor, Wagoner, park development at Fort Gibson Reservoir, Grand Neosha River, incl. boat basin, picnic area, concession house, water, electric and gas sys., roads, parking areas, bathing facilities, etc. $300,000. Wood & Craig, 500 Philtower Bldg., Tulsa, consult. engrs.

Texas—RURAL DISTRIBUTION LINES—Southwest Texas Electric Co-operative, Eldorado, rural distr. line, sys. imprvs., Schleicher Co. $320,000.

Tex., Galveston—LIGHTING, etc.—City, bond election Apr. 15, street lighting extens. $50,000; electric traffic control sys., incl. lines $75,000. George H. McDaniel, city engr.

Tex., Llano—PLAYGROUNDS, etc.—T. D. Bryant, Llano, playgrounds and recreation, 250 acre site, with 3 mi. Lake Buchanan front (tourist cottages, homes, playgrounds, swimming, streets, athletic courts, underground utilities, etc.) $250,000,

▲ **Alaska** — RURAL DISTRIBUTION LINES, etc. — Chugach Electric Assoc., Anchorage, 45 mi. 69 kv. rural distr. lines, generating facilities, 144 mi. rural distr. lines and sys. imprvs., Chugach Co. $5,289,000.

▲ **Alberta**—PIPE LINE—International Pipe Line Co., Ltd., Edmonton, 30 mi. pipe line to link pumping station at Edmonton with Redwater Oil Field. $2,000,000.

Man., Winnipeg—DRIVE-IN THEATER—Famous Players Canadian Corp., Royal Bank Bldg., Toronto, Ont., drive-in theater, $100,000. E. A. Zorn, c/o owner, engr.

Newfoundland, Twillingate — WHARF — Government of Canada, Ottawa, Ont., wharf reconstr. $225,000 voted.

Ont., Islington—STADIUM—Etobicoke Twp., S. Eckersley, clk., rein.-con., structural steel, baseball stadium, grandstands. $100,000.

Ont., Toronto—HYDRO WIRES—Municipality placing hydro wires underground downtown between new steam plant on waterfront and Don Rd. $210,000.

Ont., Windsor—ORNAMENTAL LIGHTING—Municipality, replacing 20 mi. ornamental lighting by new equip. incl. new-style concrete poles. $180,000.

Sask., Saskatoon—DRIVE-IN THEATRE—Famous Players Canadian Corp., Royal Bank Bldg., Toronto, Ont., drive-in theatre, $100,000. E. A. Zorn, c/o owner, engr.

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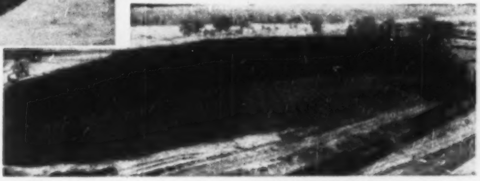

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CONSTRUCTION REPORTS–Second Section

WATER SUPPLY

BIDS ASKED

Md., Hyattsville—B. A. 4/3—Washington Suburban Sanitary Comn., Hamilton St., Contr. 755-W&S, 1,525 ft. 6 and 8 in. c.i. water mains, 1,900 ft. 6 and 8 in. plain concrete or vitr. sewers, Harvey Rd., near Dale Dr., Woodside Park, Silver Spring Dist.; Contr. 757—W&S, approx. 7,205 ft. 1¼ to 6-in. c.i. water mains, and 5,425 ft. plain concrete or vitr. sewers, Dilston, Moffet, Braddock and Neeley Rd. and Cottrell Terrace, Oakview Subdivision, Sitka Dist. Plans deposit $5 each. CD 10/10.

Md., Towson—B. A. 4/3—Comrs. Baltimore Co., Court House, Contr. 208 DS & W, water pipe, incl. 13,700 lin. ft. 6- to 12-in. c.i. pipe, appurtenances, 100 meter vaults, single setting, 108 meter vaults twin setting, 4,900 lin. ft. ¾ and 1 in. house connections; sanitary pipe, incl. 14,275 lin. ft. 6- to 12-in. vitr. and clay pipe, and 485 lin. ft. galvanized steel pipe, manholes, etc.; storm drains, incl. 3,270 lin. ft. 15- to 48-in. rein.-con. pipe, 428 lin. ft. corrugated metal pipe. Plans deposit $5. Wm. F. Neale, Court House, co. engr. CD 1/26/44.

Md., Glen Burnie—B. A. 4/5—Anne Arundel Co. Sanitary Comn. Glen Burnie, Round Bay and Serverna Park Districts water mains, 16,078 lin. ft. 2- to 10-in. c.i. pipe. Plans deposit $5. CD 1/31.

Wis., Cazenovia—B. A. 4/6—Village, WW. sys., incl. well, reservoir, mains. Plans deposit $10. Davy Eng. Co., 502 Main St., LaCrosse, engr.

Tex., Rankin—B.A. 4/7—City, WW sys. extens. $35,000. Plans deposit $20. Ashley G. Classen & Assoc., 504 N. Kansas St., El Paso, engrs.

Ga., Brunswick—B.A. 4/10—Glynn Co., Brunswick, WW sys. for St. Simons Island Water & Sewer Dist., incl. 111,800 lin. ft. 2- to 10-in. c.i. water mains and 100,000 gal. steel water tank on tower. Plans deposit $25. J. B. McCrary Eng. Corp., 22 Marietta St., Bldg., Atlanta, engrs.

Ont., Madoc—B.A. 4/10—Fred Curry, Madoc, WW sys., incl. 125,000 gal. steel water plant for Municipality, $60,000. Plans deposit $10. G. Graham Reid, 264 Avenue Ave., Toronto, engr.

CONTRACTS AWARDED

▲ **Calif., San Jose**—Santa Clara Water Conservation Dist. 60 N. 2 St., 6 mi. Leroy Anderson Dam, 75,000 acre ft. capacity 2½ mi. east of Madrone on Coyote River, to Guy F. Atkinson Co., Box 593, South San Francisco. **$1,879,772**. Bids 3/7. CD 3/14, under LB.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Que., Ste. Foy—B. A. 4/3—M. Gilbert, engr., 251 Joseph St., Quebec City, concrete and vitr. clay sewer pipe, for Municipality. CD 2/19/46.

N. Y., Atlantic Beach—B. A. 4/4—West Long Beach Sewer Dist., Town Hall, Hempstead, sewage treatment plant, etc. C. MacCallum, 299 Main St., Port Washington, engr.

Pa., Glenroy—B.A. 4/4—Fridy Gauker, Truscott & Fridy, archts., 1321 Arch St., Phila., industrial waste treatment plant, for Turner & Westcott, Inc., 1327 N. Marston St., Phila. Approx. $50,000. CD 1/4/46.

Tex., Bartlett—B.A. 4/6—City, sewage treatment plant, $60,000. Plans deposit $20. The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, engrs. CD 1/3.

Tex., Rankin—B.A. 4/7—City, sanitary sewage disposal plant $75,000. Plans deposit $20. Ashley G. Classen & Assoc., 504 N. Kansas St., El Paso, engrs.

Fla., Sarasota—B.A. 4/10—City, City Hall, sanitary sewer imprvs., incl. 285,640 lin. ft. 6- to 21-in. vitr. clay pipe, 80,600 cu. yd. paving, 34,395 lin. ft. c.i. or cement asbestos pipe, 22 pumps, 3 single, pneumatic ejectors. Russell & Axon, P.O. Box 431, Daytona Beach, and C. K. S. Dodd, Sarasota, assoc. archts. Plans deposit $50 for Parts 1 and 2, $35 for Part 3. CD 12/1.

Wash., Auburn—B.A. 4/10—City, City Hall, treatment plant, pump station separation & existing combined sanitary and storm sewers and installation 51,771 ft. 6 to 36-in. sewers in LIDs 102 and 103. $450,000. Plans deposit $25. General Eng. Co., Central Bldg., Seattle Zone 4, engr. CD 9/29/48.

Ont., Madoc—B.A. 4/10—Fred Curry, clk., Madoc, sewerage sys. for municipality. $75,000. Plans deposit $10. G. G. Reid, 264 Avenue Rd., Toronto, engr.

Wash., Olympia—B.A. 4/11—City, City Hall, 23,400 ft. 6- to 12-in. sewers in O'Farrell Ave. and other roads under LIDs 551, 554 and 555. Approx. $50,000. Plans deposit $5. H. G. Porak, city engr. CD 8/39/46.

Calif., Los Angeles—B.A. 4/12—Los Angeles County Sanitary Dist. 2, 1026 S. Maple Ave., 19,300 ft. 78 in. rein.-con. conduit from 223 St. and Wilmington Ave. to Del Amo St. and Dominquez Junction, Long Beach. Approx. $50,000. A. M. Rawn, dist. engr.

LOW BIDDERS

La., Gretna—Sewerage Dist. 2 of Jefferson Parish, Jefferson Hy. and Arnoult Rd., Mar. 10, sanitary sewerage sys., incl. 1.94 mi. c.i. force mains, 3.6 mi. sewers, 10 pumping stations, etc., from R. P. Farnsworth, 1515 S. Salcedo St., New Orleans, Bid A **$362,338**; Bid B **$363,231**; Bid C **$370,159**; Bid D **$371,052**. CD 3/1.

CONTRACTS AWARDED

Conn. Fairfield — Town, Sewer Comn., Town Hall sewage disposal plant, to Terminal Constr. Co., Woodbridge, N. J., **$840,000**. Bids 2/23. CD 2/28, under LB.

Kan., Topeka—Topeka Twp. Sewerage Dist. 1, c/o W. M. Sims, 29 St. and California Ave., R. F. D., from Topeka sanitary sewers, Shawnee Co., to Rhoades Constr. Co., 413½ Main St., Newton, **$795,287**. Bids 2/25, K. E. Recto, New England Bldg., engr.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

April 3
Connecticut
April 6
New Jersey

April 12
California
April 14
Pennsylvania
Tennessee

▲ **Mass., Boston**—B.A. 4/11—City, Institutions Dpt., City Hall Annex, viaduct, over Boston Harbor, Moon Island to Long Island. Approx. $2,000,000. Plans deposit $50. Crandall Eng. Co., 261 Franklin St., engr. CD 9/15.

California—B.A. 4/12—State Div. Hys., Sacramento,
Sonoma Co.—rein.-con. slab bridge, c. conc. 0.12 mi. over Hobson Creek at Hacienda. G. T. McCoy, Sacramento, state hy. engr.

† **Fla., Key West**—B.A. 4/13—U. S. Navy, Charleston Naval Base, Charleston, S. C., replacing, underpinning bridge with steel piles, structural steel beams and diagonal steel braces on Fleming Key Bridge, Naval Magazine Key West, NOY 20226, Spec. 23743. Plans deposit $10.

† **Idaho**—B.A. 4/13—Bureau Reclamation, Anderson Dam, construction Lime Creek bridge for relocated reservoir road Anderson Ranch Dam, Boise Proj., approx. 30 mi. northeast of Mountain Home, Elmore Co., Spec. 2850. L. N. McClellan, Bldg. 10A, Denver Federal Center, Denver, Colo., ch. engr.

La., New Orleans—B.A. 4/17—New Orleans R.R. Terminal Bd., c/o G. A. Heft & Co., engr., 820 Union St., North Broad-New Orleans St., underpass at Florida Ave. $750,000. Plans deposit $25. CD 1/19.

LOW BIDDERS

▲ **New York**—Bureau Contracts & Accounts, Bertram D. Tallamy, supt., Albany, Mar. 15, rein.-con. deck and concrete wearing course for twin 36 ft. roadways on 1 mi. Meeker Ave. viaduct sect. of Brooklyn-Queens Expressway from Metropolitan Ave. northeasterly to Morgan Ave. in Brooklyn, Kings Co., from Charles F. Vachris, Inc., 827 Remson Ave., Brooklyn, **$931,040**, est. $1,500,000; 3 span, 246 ft. I-beam bridge carrying Route 58 (William St.) in village of Gouverneur over Oswagatchie River, incl. 0.13 mi. variable width c. conc. paving, etc., St. Lawrence Co., from Baughman & Blair, Inc., Fishers St., Rochester, **$212,584**, est. $259,000. CD 3/2.

▲ **Pennsylvania**—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, Mar. 20, superstructure of bridge to carry Western Exten. of Pennsylvania Turnpike over Beaver River, Sec. 29CD, approx. ½ mi. east of Homewood, from point approx. 284 ft. west of the centerline of west track of P. & L. E. R. R. in Big Beaver Twp., east 1,545 ft. to point approx. 478 ft. east of centerline of east track of P. R. R. in North Sewickley Twp., approx. 0.293 mi., Beaver Co., from American Bridge Co., Broad Street Station Bldg., Phila., **$1,568,272**. CD 3/6.

▲ **Pennsylvania**—State Hy. & Bridge Auth., 506 N. Office Bldg., Harrisburg, Mar. 17, 27-span deck plate girder I-beam and rein.-con. T-beam bridge together with grading, paving approaches and connecting side streets; construct pedestrian underpass and rein.-con. box, "North Bridge" over Susquehanna River between Wormleysburg and Harrisburg, 7,990 ft. L. R. 770 (2); 1 (13); 30 Spur E; 21021 Spur E; 21021 (1) T. R. 14, 15, 22, Cumberland and Dauphin Counties, from Booth & Flinn, 1942 Forbes St., Pittsburgh, **$4,765,238**. Est. $5,500,000. CD 2/8.

STREETS AND ROADS

BID ASKED

STATE HIGHWAY LETTINGS

April 3
Connecticut
April 4
Massachusetts
April 5
Louisiana
April 6
Nevada
New Jersey
April 10
Minnesota
April 11
California

New Hampshire
Virginia
April 12
California
April 13
California
April 14
Massachusetts
Pennsylvania
Tennessee
April 19
Louisiana

† **California**—B.A. 4/11—Bureau Public Rds., Dpt. Commerce, 180 New Montgomery St., San Francisco.

Placer Co.—hy. imprvt. 19.047 mi. Tahoe National Forest, Mosquito Ridge, Forest Hy. (96-A, 1, B1, C1 and D2). Plans deposit $10. C. C. Morris, div. engr. CD 8/4/44.

† **New Hampshire**—B.A. 4/11—U. S. Eng., Army Base, Boston 10, Mass., construct service road, Franklin Falls Dam, Franklin, Serial No. CIVENG-19-016-50-52.

New Jersey—B.A. 4/11—New Jersey Turnpike Auth., War Memorial Bldg., Trenton,

Gloucester and Salem Counties—Contr. 3, grading, drainage structures, overpass, underpass and stream bridge structures, in connection with constr. between Deepwater and Woodbury. CD 7/13.

La., Church Point—B.A. 4/18—City, City Hall, Street Imprvt. Projects A, B and C. F. S. Robert, Opelousas, engr.

† **Ariz., Whipple**—B.A. 4/25—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash., 25 D. C., road repairs and resurf. for Veterans Admin. Center, Spec. 5043, Proj. No. 0-5018.

Tex., Baytown—Bids Asked—Britton—Cravens Lumber Co., Baytown, street constr. paving. **$75,000.**

LOW BIDDERS

▲ **Florida**—State Rd. Dpt., LaConcha Hotel, Key West, Mar. 14, imprv. S-169 (3), Okeechobee Co., and compacting base, bit. 2.664 mi. Rd. 939 between State Rd. 5 at Perky and Old State Rd. 4A, State Proj. Job 9000-103, Monroe Co., from Belcher Oil Co., 1217 Biscayne Blvd., Miami, **$123,430** and **$74,787** respectively***improv. S-203 (1) Washington Co., and imprv. FG-004-1 (1), Jackson Co., from Coggin & Deermont, Chipley, **$116,893** and **$70,529** respectively***imprv. FI-79 (7), Duval Co., and lime rock, stabilized base with bit. 5.251 mi. Rd. 131 between State Rd. 25 and County Rd. approx. 5.251 mi. north State Proj. Job 2975-103, Columbia Co., from Duval Eng. & Contg. Co., 1746 E. Adams St., Jacksonville **$649,265** and **$131,669** respectively***imprv. S-112 (2), Hardee and Highlands Counties, from Cone Bros. Contg. Co., Caeser Ave. and Cumberland St., Tampa, **$340,765*****imprv. S-269 (1), Manatee Co., from W. L. Cobb Constr. Co., 1102 N. 22 St., Tampa, **$243,609*****imprv. S-38 (2), Liberty Co., from Faulk & Coleman, 4 Points Woodville Hy., Tallahassee, **$169,647*****imprv. 1712-102, Sarasota Co., from Marion Constr. Co., Ocala, **$341,878*****lime rock stabilized base with bit. 10.735 mi. Rd. 25 between Lake City and Suwannee Co. line, State Proj. Job 2975-104, Columbia Co., from James H. Craggs Constr. Co., Ocala, **$91,684*****Miami rock base with bit., constr. three 30 ft. bridges consisting concrete slabs on concrete pile bents 5.146 mi. Rd. 802 between Rd. 7 and point approx. 5.146 mi. East, State Proj. Job. 9375-107, Palm Beach Co., from Brinson Constr. Co., 51 St. and Ed. Broadway Ave., Tampa, **$190,062*****sand-clay base wid'n. strips, constr. b. conc. over entire surface 0.996 mi. Rd. 61 between S.A.L. R.R. underpass in Tallahassee and point approx. 0.996 mi. south, State Proj. Job. 5504-06, Leon Co., from A. F. Rich Co., Monroe and Pershing Sts., Tallahassee **$113,103*****imprv. FG-011-3(1), Citrus Co., from Ewell Eng. & Constr. Co., Lakeland, **$84,481**. CD 3/8.

▲ **Illinois**—State Div. Hys., Springfield, Mar. 17, c. conc. 7 mi. U.S. Rt. 40, Cumberland Co., from Standard Paving Co., 30 N. La Salle St., Chicago, Zone 2, **$809,000*****bit. 4.39 mi. Ill. Rt. 705, Willow Hill and St. Marie, Jasper Co., from McMahan Constr. Co., Rochester, Ind., **$83,435*****bit. 7.22 mi. Ill. Rt. 3, Randolph Co., from Thompson Asphalt Co., 6 and McCambridge Sts., Madison, **$149,944*****c. conc. wid'n. 7.22 mi. Ill. Rt. 3, Randolph Co., from E. T. Simonds Constr. Co., 202 W. Willow St., Carbondale, **$98,101*****bit. 19.17 mi. U.S. Rt. 460, St. Clair Co., from Chas. G. Gilmore Asphalt Products, Anna, **$346,319*****c. conc. 1.21 mi. Ill. Rt. 10, Vermilion Co., from E. A. Meyer Constr. Co., 1539 Morrow Ave., North Chicago, **$147,701*****grav. or crushed stone surf. 3.79 mi. Ill. Rt. 884, White Co., from Leon B. Stilley Constr. Co., Golconda, **$97,472*****c. conc. 0.28 mi. approaches to grade separation on Ill. Rt. 99, Wilmette, Cook Co., from Millburn Bros. Inc., 704 Central Rd., Mt. Prospect, **$151,996**. CD 3/3.

▲ **Massachusetts**—Commonwealth of Massachusetts, Dpt. P. Wks., Boston, Mar. 14, constr. 3.3 mi. relocated Rte. 128 from south of Concord Turnpike in Lexington to near Main St., Waltham, from Henry N. Worthington, Quincy, **$1,178,234*****constr. 2.9 mi. section Worcester-Providence Hy. through Sutton, Northbridge, Douglas, and Uxbridge, from S & M Constr. Co., 450 Manton Ave., Providence, R. I., **$775,452*****reconstr. Rte. 67, connecting road between Rte. 9 W. Brookfield and Rte. 20, Palmer, and reconstr. Main St. Wales, from Frank J. Shield Co., Southbridge, **$171,395** and **$74,031** respectively***section Rt. 15, incl. modern traffic interchange junction of Rte. 20, from White Oaks Excav. Co., Plainville, Conn., **$1,386,405*****reconstr. Main St., Hopkinton, from San-Vel Contg. Co., Littleton, and David J. Roach Co., East Bridgewater, **$127,178**. CD 3/3.

▲ **New York**—Bureau Contract & Accounts, Bertram D. Tallamy, supt., Albany, Mar. 15, reconstruct 4.44 mi. county road with 20 ft. wide bit. surf. treated gravel pavement from point 100 ft. west of Newcomb-Minerva town line easterly to point at Boreas River north of Chegney Pond, etc., Essex Co., from William Van Kleeck, Rifton Rd., New Paltz, **$296,905**, est. $324,000***reconstruct 0.55 mi. Route 3 with 22 ft. wide b. conc. pavement exten. from point 1.5 mi. northeast of Fargo, northeasterly to point approx. 400 ft. east of Black Creek, incl. construction 24 ft. span rein.-con. bridge, etc., Jefferson Co., from Law Bros. Co. and A. J. Leaf "Les" Strong Constr. Co., 200 N. Main St., Herkimer, **$81,317**, est. $99,000*** grading, structures 3.75 mi. Palisades Interstate Parkway from point on Queensboro Trail in play area, northeastward to Bear Mountain Bridge traffic circle on Route 9W, Orange and Rockland Counties, from Michael J. Torpey, Inc., 50-07, 49 St., Long Island City, **$1,416,975**, est. $1,581,000. CD 3/2.

CONTRACTS AWARDED

Colorado—State Hy. Dpt., Denver, grading, structures, 4.818 mi. State Hy. 20 from Mother Grundy to Forks Creek, Via Clear Creek Canyon, Jefferson, Clear Creek and Gilpin Counties, to Horner & Switzer Constr. Co., 118 S. Pecos St., Denver, **$645,383.** Est. $699,999. Bids 2/3, awarded 3/1. CD 2/8, under LB.

Indiana—State Hy. Comn., Indianapolis, c. conc. 3.8 mi., 2 bridges State Hy. 41, near Princeton, Gibson Co., to Olinger Constr. Co., Huntingburg, **$780,447.** Bids 2/21, awarded 3/9. CD 2/21, under LB.

Kansas—State Hy. Comn., Great Bend, c. conc. 9.255 mi. Proj. 281-5 F 158(4) Part I, and c. conc. 0.037 mi. Proj. 281-5 F 158(4) Part II, Barton Co., to Koss Constr. Co., Pauline, **$505,315**; c. conc. 6.049 mi. Proj. 40-84 FI 301(19) Part I, Russell Co. to Peter Kiewit Sons' Co., 1024 Omaha National Bank Bldg., Omaha, Neb., **$319,041.** Bids 3/14. CD 3/7.

Kansas—State Hy. Comn., Olathe, grading 3.444 mi., Proj. 50-46 FI 595(1), Johnson Co., and grading 0.549 mi., Proj. 36-22 F 116(4), Part I, grading 2.651 mi. Proj. 36-22 F 116(4), Part II, base course and single b. conc. surf. tr. (detour), Proj. 36-22 F 116(4), Part II, Doniphan Co., to George Bernett Constr. Co., 1520 Central Ave., Kansas City, Kan., **$651,873**, CD 3/8 under LB and **$163,694** respectively; c. conc. 0.059 mi. Proj. 3 FAGM-UG 100(2), Atchison Co., to Land Constr. Co., 1207 S. 4 St., St. Joseph, Mo., **$50,562.** Bids 2/28. CD 2/13.

▲ **Massachusetts**—Commonwealth of Mass., P. Wks. Dpt., Boston, state hy. and bridge constr. U-272 (24), Waltham and Weston, to J. F. Fitzgerald Constr. Co., 212 Essex St., Boston, **$3,830,086.** Bids 2/28, awarded 2/14. CD 3/8, under LB.

▲ **New Jersey**—New Jersey Tunpike Auth., 65 Prospect St., Trenton, Contr. 10, grading, drainage, drainage structures etc. in connection with constr. 6.1 mi. New Jersey Turnpike Sect. 5, Sta. 11 plus 50 to Sta. 335 plus 67 from Raritan River to vicinity Main St., Woodbridge, Middlesex Co., to The Villa Contg. Co., Inc., 223 North Ave. W., Westfield, **$1,776,420.** Bids 3/8, awarded 3/23. CD 3/10, under LB.

▲ **New York**—Bureau Contracts & Accounts, Albany, 4.52 mi. Bronx River Parkway from Bruckner Blvd. to 233 St., Bronx Co., to John C. Peterson Constr. Co., 958 Church St., Baldwin, **$1,657,026.** Bids 1/25. CD 1/30, under LB.

▲ **Pennsylvania**—State Hy. & Bridge Auth., 506 N. Office Bldg., Harrisburg, Schedule 1, construct divided highway consisting of two 24 ft. lanes of c. conc. pavement on each side of a variable width concrete and earth divisor area, incl. construction of one rein.-con. structure and three I-beam bridges; grading, drainage variable 82 to 130 ft. in width, crushed stone base, bit. surf. 22 ft. wide and two I-beam bridges, grading 6,749 lin. ft. roadbed for relocating railroad incl. 2 plate girder bridges and one rein.-con. structures and raising of 4,650 lin. ft. of existing railroad roadbed, incl. raising existing bridge superstructure and construct one plate girder bridge, 20,437 ft. L.R. 769 (1-A), 46174 (1); 769 (1-B), from village of King of Prussia to the village of Gulph Mills a sect. of Schuylkill Expressway to link Pennsylvania Turnpike with city of Philadelphia, Montgomery Co. to James D. Morrissey, Inc., 9119 Frankford Ave., Phila., **$2,616,669.** Bids 3/3, awarded 3/16. CD 3/7, under LB.

▲ **Tennessee**—State Hy. Dpt., Nashville, wid'n. bituminous materials resurf. State Route 1, from west limit to east limit of Rockwood, 2.2 mi.; of Route 1 from Crossville to Roane Co. line, 18.9 mi.; of Route 1 from Cumberland Co. lines to Rockwood and section of State Route 29, from Route 1, south of Rockwood to White Creek at Roane-Rhea Co. line, 7.7 mi., Roane and Cumberland Counties, to Gamble Constr. Co., Lee Hy., Chattanooga, **$533,382**; c. conc., incl. 2 bridges, 1.4 mi. relocated sect. State Route 1 in Murfreesboro, Rutherford Co., to J. B. Michael & Co., Inc., 1021 Heywood St., Memphis **$547,737.** Bids 3/3. CD 3/9, under LB.

EARTHWORK, WATERWAYS

BIDS ASKED

Pa., Wilkes Baire—B.A. 4/3—Scranton—Spring Brook Water Service Co., 30 N. Franklin St., excavation, backfilling trench approx. 17,160 lin. ft. 16 and 24 in. c.i. pipe along State Hy. Routes 40045 and 315, Plains Twp. and Wilkes-Barre City, approx. 9,100 lin. ft. trench will be partly or wholly in rock, involving approx. 4,000 cu. yd. rock excav. Plans deposit $25. Thomas H. Wiggin, 90 Broad St., New York, 4, N. Y., consult. engr.

† **Arkansas**—B.A. 4/4—U. S. Eng., P. O. Box 97, Memphis, 1, Tenn., slope dressing approx. 350 acres levee, placement 9,500 cu. yd. earthworks, etc. in connection with repair of rain wash on Lower Francis Levee Dist. levee, Stations 103/0-154/0 levee Item No. R740R, St. Clair, Inv. Serial No. CIVENG-40-041-50-124.

† **Arkansas**—B.A. 4/5—U. S. Eng., 300 Broadway, Little Rock, pressure relief wells for underseepage control, Arkansas River, Arkansas River Watershed, Lots I, II, III. Serial No. CIVENG-03-050-50-81. CD 12/24/43.

† **Florida**—B. A. 4/5—U. S. Eng., P. O. Box 4970, Jacksonville, repairing South Jetty and revetment Palm Beach Harbor, Inv. No. CIVENG-08-123-50-78. Extended date. CD 3/3.

† **Massachusetts**—B.A. 4/5—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., flood control project, Adams.

† **New York**—B.A. 4/6—U. S. Eng., 80 Lafayette St., New York, Zone 13, channel imprvs., Hoosick River, Hoosick Falls, CIVENG-30-075-50-67. $350,000. Extended date. CD 3/6.

† **South Dakota**—B.A. 4/6—Bureau Reclamation, Dpt. Interior, Lemmon, clearing part of Shadehill reservoir site, Missouri River Basin Proj., Grand Division, Spec. R6-38 (Region 6). Extended date. CD 3/1.

† **Virginia**—B.A. 4/6—U. S. Eng., foot of Front St., Norfolk, clearing parcels E, F and G, Buggs Island Reservoir Proj. Roanoke River, Inv. Serial No. CIVENG 44-110-50-66. Extended date. CD. 3/7.

† **Virginia**—B.A. 4/6—U. S. Eng., Madison Ave., and 8 St. W, Huntington 18, W. Va., local protection proj., Galax, in and adjacent to town of Galax, Carroll and Grayson Counties, Serial No. CIVENG 46-022-50-90. CD 2/28.

† **Arizona**—B.A. 4/11—Bureau Reclamation, Dpt. Interior, Yuma, reconstr. Gila Valley Canal Desilting Basin, Gilla Proj. Imperial Dam near Yuma, Spec. 2954. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

† **California**—B.A. 4/11—U. S. Eng., Wright Bldg., Sacramento, clearing for Right Wing Dikes 1, 2, 3, 4 and 6 at Hinkle Reservoir 3 mi. northeast of Folsom and exten. northeasterly into Placer Co. for approx. 4 mi. near Folsom, Sacramento and Placer Counties, Spec. 04-167-5052.

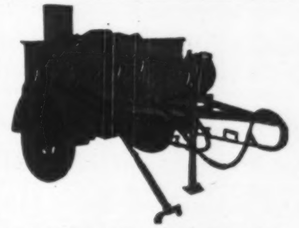
† **Oregon**—B.A. 4/12—U. S. Eng., Pittock Block, Portland, bank protection works at various locations along both banks Long Tom River, from 1.5 mi. downstream from Fern Ridge Reservoir, Lane Co., CIVENG 35-026-50-284.

† **Montana**—B.A. 4/13—Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Louisville, 2 double frame assemblies, not incl. anchor bolts for river outlets at Canyon Ferry Dam Helena—Great Falls Div., Canyon Ferry Unit, Missouri River Basin Proj., Spec. 2945. CD 2/28, under LB.

LOW BIDDERS

† **Indiana**—U. S. Eng., 830 West Broadway, Louisville 3, Ky., dam, spillway, earthen and rock levees, service bridge and access road, Cagles Mill Creek, CIVENG-15-029-50-63, from Ralph Meyers, Salem, **$995,434.** Est. $2,231,113. CD 2/3.

† **Maryland**—U. S. Eng., 1 and Douglas Sts. N. W., Wash. 25, D. C., Mar. 16, spillway and outlets, miscellaneous work, Savage River Dam Reservoir Proj., located on Savage River, Garrett Co., 26 mi. S. W. of Cumberland and 4½ mi. upstream of Bloomington, CIVENG 49-080-50-62, from Lewis & Bowman, Box 743 Goldsboro, N. C., **$576,357.** CD 2/15.



HEATING KETTLES
FOR ASPHALT AND TAR
Fire Proof—Oil Burning
Hand and Motor Driven Spray

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CONCRETE VIBRATORS
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FRONT END SHOVELS
For Industrial Tractors
AGGREGATE DRYERS
For Stone and Sand
ASPHALT PLANTS
Portable—Stationary
Write for Circulars

White Mfg. Co.
ELKHART INDIANA

▲† **New York**—U. S. Eng., 80 Lafayette St., Zone 13, Mar. 16, dredging approx. 1,754,900 cu. yd. material except ledge rock from Hudson Rier Channel, CIVENG 30-075-50-81, from Arundel Corp., foot of Fulton St., Brooklyn, **$1,215,875.** CD 3/3.

▲ **Pa., Phila.,**—Dpt. P. Wks., City Hall Annex, Mar. 17, from Conduit & Foundation Corp., 770 S. Schuylkill Ave., Frankford Creek Flood Control Proj., Part A, **$730,027**; Part B, **$400,520**; Part C, **$316,528.** CD 2/27.

CONTRACTS AWARDED

▲† **Arkansas**—U. S. Eng., P. O. Box 69, Vicksburg, Miss., embankment and intake structures, Blakely Mt. Dam, Ouachita River, Garland Co., to Groves, Lundin & Cox, Inc., 310 Wesley Temple Bldg., Minneapolis, Minn., **$4,853,248.** Bids 2/9, awarded 2/24. CD 2/17, under LB.

▲† **California**—Bureau Reclamation, Dpt. Interior, Friant, earthwork, pipe lines and structure, Friant-Kern Canal distr. sys., Central Valley Proj., near Delano, Spec. 2893, to United Concrete Pipe Corp., Baldwin Park, **$1,573,639.** Est. $2,254,271. Bids 2/24, awarded 3/17. CD 3/2, under LB.

▲† **California**—U. S. Eng., 751 S. Figueroa St., Los Angeles, flood control basin, spillway and east embankment, Whittier Narrows, El Monte, Los Angeles Co., CIVENG-04-343-50-27 to Winston Bros. Co., 431 N. Irwindale Ave., El Monte, **$3,022,478.** Bids 2/28, awarded 3/14. CD 3/2, under LB.

† **Calif., Los Angeles**—U. S. Eng., 751 S. Figueroa St., Compton Creek Imprvt., Hooper Ave. storm drain to Lanzit Ave., CIVENG-04-343-50-26, to P. & J. Artukovitch, 13305 S. San Pedro St., **$651,271.** Bids 2/24, awarded 3/14. CD 3/6, under LB.

† **Florida**—U. S. Eng., P. O. Box 4970, Jacksonville, constr. Levees L-35 and L-36 Central and Southern Florida Flood Control, near Ft. Lauderdale, Broward Co., Inv. No. CIVENG 08-123-50-54, to Hooper Constr. Co., Coral Gables, **$741,615.** Bids 2/15, awarded 2/23. CD 2/21, under LB.

▲† **Illinois and Missouri**—U. S. Eng., P. O. Box 97, Memphis, Tenn., revetment at several localities between Cairo, Ill., and Cottonwood Point, Mo., Inv. CIVENG-40-041-50-79, to McAlister Constr. Co., 833 State St., Pine Bluff, Ark., **$1,642,850.** Bids 2/28. CD 1/18.

† **Kentucky**—U. S. Eng., Huntington Dist., Madison Ave. and 8 St. W., Huntington, 18, W. Va., local protection proj. Sect. 2 approx. 4,400 ft. earth levee approx. 3,600 ft. interceptor sewers and 8x8 ft. culvert about 325 ft. long and 2 gate walls in city of Maysville, Mason Co., along left descending bank of Ohio River, CIVENG-46-022-50-65, to The W. L. Harper Co., Highland near Lester Sts., Cincinnati, O., **$567,349.** Bids 2/7, awarded 3/3. CD 2/16, under LB.

† **New York**—U. S. Eng., Engineer Park, Niagara and Bridge Sts., Buffalo, Zone 7, wid'n., ceepening Creek Channel, construct rein.-con. conduit, flood walls, levees, drainage lines and stone riptrap protection, Shequaga Creek, Oswego River Basin, Montour Falls, Inv. CIVENG 30-023-50-25, to Beru Constr. Co., McKinley Bldg., Buffalo, **$572,370.** Bids 2/24. CD 2/20.

▲† **Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, Belton Dam concrete outlet works, on Leon River, a Brazos River tributary, CIVENG-41-253-50-139 to Winston Bros., 1470 Northwest Bank Bldg., Minneapolis, Minn., **$1,890,571.** Bids 2/18. CD 2/24, under LB.

▲† **Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, 3,400,000 cu. yd. earth and 128,000 cu. yd. rock, completion of embankment, Grapevine Dam and Reservoir, Denton Creek, Elm Fork of Trinity River, Inv. No. 41-243-50-151 to T. L. James & Co. Inc. and Guilliam Bros., Ruston, La., **$1,835,178.** Bids 2/14. CD 2/21, under LB.

† **Virginia**—U. S. Eng., foot of Front St., Norfolk, clearing Parcels B, C, and D, Buggs Island Reservoir Proj. Roanoke River, Serial No. CIVENG 44-110-50-50, to Wester Burnette Constr. Co., Denison, Tex., **$563,062.** Bids 2/28. CD 2/1.

AIRPORTS

BIDS ASKED

Mich., Detroit—AIRPORT—B.A. 4/4—Wayne Co. Rd. Comn., 3800 Cadillac Tower, runways, Detroit-Wayne Airport, Romulas, $350,000.

Neb., Omaha—AIRPORT—B.A. 4/4—City, City Hall, 18 and Farnam Sts., airport imprvs., Sect. 1, reconstruct runways, asph.; concrete apron, parking area and walks, chain link fence, flood lights; Sect. 2, fertilizing and seeding; Sect. 3, furnish, install one gasoline driven generator unit not less than 150 kw. Approx. $50,000. Kirkham Eng. Co., 1504 Dodge St., engr. CD 11/13/46.

N. C., Wilmington—AIRPORT TERMINAL—B.A. 4/5—New Hanover Co., Wilmington, airport terminal bldg., facilities. $160,000. Plans deposit $100, Leslie N. Boney, Murchison Bldg., archt. CD 3/24.

R. I., Warwick—RUNWAY, etc.—B. A. 4/5—Div. Purchases, at office Franklyn A. Adams, state purch. agt., State House, Smith St., Providence, Contr. 9120-42-2—T. F. Green, 5,465.86 ft. parallel northeast-southwest runway, concrete with air entrainment, 200 ft. wide, crushed gravel sub-base, 1,575 ft. taxiway 60 ft. wide between respective southwest ends of northeast-southwest and parallel northeast-southwest runways. b. asphalt concrete surf. and binder course on crushed grav. sub-base, etc., Theodore Francis Green Airport. Plans deposit $25., adv. ENR 3/30.

† **Va., Oceana**—OFFICERS QUARTERS—B.A. 4/5—Pub. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk Zone 11, married officers' quarters at Naval Auxiliary Air Station, NOY 19803, Spec. No. 23443. Plans deposit $10.

O., Cleveland—RUNWAYS—B.A. 4/6—City, City Hall, Lakeside and 6 Sts., 2 runways, incl. some sewage and drainage at Cleveland Municipal Airport. $540,000. Plans deposit $75. J. C. Wenrich, c/o owner, city engr. CD 11/21.

Wis., Clintonville—AIRPORT PAVING—B.A. 4/6—City, paving at airport, $100,000. Foth & Porath, Inc., 409 E. Walnut St., Green Bay, engr. CD 11/6/46.

†**Ala., Selma**—CRASH STATION—B.A. 4/11—U.S. Eng., 2301 Grant St., Mobile, three-stall crash station rein.-con. fdn., at Craig Air Force Field, near here. Serial No. 01-076-50-42. Plans deposit $10.

† **S. D., Rapid City**—PARKING APRON—B.A. 4/11—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., addnl. parking apron, Rapid City Air Force Base, Serial No. Eng-25-066-50-9. CD 3/6.

LOW BIDDERS

Wash., Seattle—RUNWAY—Port of Seattle, Bell St. Terminal, Zone 1, rejected bids Jan. 17, 1400 ft. extension of north-south runway at Seattle-Tacoma Airport c. a. $222,822. New bid date Mar. 28. $450,000. Plans deposit $50. G. T. Treadwell, ch. engr. (Correction-status). CD 1/23, under CA.

CONTRACTS AWARDED

Ore., Portland—AIRPORT—Port of Portland, Spalding Bldg., clearing, grading, draining, paving Portland-Columbia municipal airport, to Warren Northwest, Inc. 9860 N. E. Hancock Dr., **$744,951**. Est. $1,000,000. Bids 2/10, awarded 3/17. CD 2/16, under LB.

▲ **Pa., Phila.**—TERMINAL BLDG.—Dpt. P. Wks., City Hall Annex, Mar. 15, terminal bldg., International Airport, from John McShain, Inc., 17 and Spring Garden Sts., **$4,926,000.** CD 2/28.

LATIN AMERICA

Brazil, Rio de Janeiro—General Ministry of Pub. Wks., Aven. Nilo Pacanha, 12, Mar. 13, removing Santo Antonio Hill, from Companhia Metropolitana Construcoes Ltda e L. Quatrone, Rio de Janeiro, 496,808,840 cruzeiros, Approx. **$25,000,000.** CD 2/2.

Mexico, Tijuana—Mexican Govt., Sria. de R. H. Balderas, 94, Mexico, D.F., receiving bids April 10, water tunnel. Plans deposit $23.25. Manuel Anaya y S. c/o owner, chief sanitation engr.

Venezuela, Maracaibo—Intercontinental Hotels Corp., 41 E. 42 St., New York 17, N. Y., U. S. A. receiving bids April 30, 150 room hotel to be named "Del Lago Hotel". $2,100,000.

PUBLIC BUILDINGS

BIDS ASKED

Md., Hagerstown—HOSPITAL—B. A. in April—Washington County Hospital Assoc. Charles J. Cotler, supt., Hagerstown, hospital addn., King and Antietam Sts., 7 story, 64x125 ft. wing, 3 story, 37x62 ft. ell, 42x152 ft. 77-bed nurses home and educ. bldg., brick, steel constr. Buckler, Fenhagen, Meyer & Ayers, St. Paul and 24 Sts., Baltimore, Zone 18, archts. CD 2/25/49.

▲ **Que., Montreal**—HIGH SCHOOL—B.A. 4/3—Mary A. John, acting secy. Protestant Bd. School Comrs., 3460 McTavish St., Marklands High School in three sections (A) 102x117 ft. (B) 64x342 ft. (C) 76x124 ft., with swimming pool section 66x92 ft., rein.-con. structural steel, brick/terra cotta, stone, Somerled and Draper Aves. N. D. de Grace Ward, $2,275,000. Plans deposit $200. Archibald, Illsley & Templeton, 1440 St. Chaterine St. W., archts. CD 2/11/49.

Ark., Arkadelphia—DORMITORIES—B. A. 4/4—Henderson Teachers College, Arkadelphia, 4 brick dormitories. Wittenberg, Delony & Davidson, Pyramid Bldg., Little Rock, archts. CD 2/15/43.

Ga., Atlanta—HIGH SCHOOL—B.A. 4/4—Fulton County Bd. Educ., Courthouse, Southeast Fulton High School. $500,000. Plans deposit $40. Cooper, Bond & Cooper, Henry Grady Bldg., archts. CD 12/21/49.

Kan., Herndon—SCHOOL—B.A. 4/4—Bd. Educ., Herndon, combined grade and high school, $250,000. Hibbs & Robinson, 519 S. Broadway, Wichita, archts. CD 12/19.

Minn., Robbinsdale—SCHOOL—B.A. 4/4—Bd. Educ., A. G. Bossert, clk., 2 story, 60x170 ft. school addn. Approx. $250,000. Plans deposit $20. Haxby, Bissel & Belair, 1111 Nicollet Ave., Minneapolis, archts. CD 2/16.

▲ **N. Y., Massena**—HOSPITAL—B.A. 4/4—Massena Memorial Hospital, Town Hall, memorial hospital addn. $1,000,000. Plans deposit $25. Smith & Stickney, 154 East Ave., Rochester, archts.

O., Ashtabula—SCHOOL—B.A. 4/4—Bd. Educ., Ashtabula, Bunker Hill Elementary School addns., alterations, Bunker Hill Rd., Chestnut Ave. School, Chestnut Ave. and W. 54 St., $361,000. Fulton, Krinsky & Delamotte, 6014 Euclid Ave., Cleveland, archts. Levi B. Mumma, 6014 Euclid Ave., Cleveland, engr. CD 11/25.

La., Independence—LAUNDRY, etc.—B. A. 4/5—State Div. Admin., 201 Capitol Annex, Baton Rouge, laundry and kitchen, dining room bldg., Florida Parishes, Charity Hospital, Plans deposit $20.

† **Md., White Oak**—RESEARCH—B.A. 4/5—Pub. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash. 25, D. C., 4 brick, rein.-con. bldgs., Naval Ordnance Laboratories. Plans deposit $10, CD 7/6/48.

▲ **Minn., Duluth**—SCHOOL—B.A. 4/5—Bd. Educ., H. J. Forsberg, clk., 225 N. 1st Ave. E., 3 story West End Elementary School, 24 Ave. W and 4 St. $1,000,000, Plans deposit $25. A. R. Melander, 603 Alworth Bldg., archt. CD 3/16.

▲ **N. Y., Henrietta**—SCHOOL—B.A. 4/5—Bd. Educ., Rush-Henrietta Central School Dist., Henrietta, central school. $1,500,000. Ade & Todd, Mercantile Bldg., Rochester, archts.

N. Y., Northville—SCHOOL—B.A. 4/5—Bd. Educ., High School Bldg., Northville, school addn., Carl W. Clark, 625 James St., Syracuse, archt.

Pa., Huntingdon—MAINTENANCE—B.A. 4/5—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, general contract, heating and ventilating, plumbing, electrical work highway maintenance bldg. for State Highways Dpt. Plans deposit $10 general contract, $5 others. Architectural Unit, Pa. State Hys. Dpt., Harrisburg, archt. W. B. Jefferis, dir. Constr., c/o owner.

† **Wyoming**—CONTROL HOUSE—B. A. 4/5—Bureau Reclamation 504 Conroy Bldg., Casper, control house for New Casper sub-station, Kendrick proj., approx. 3½ mi. west of Casper and 1,500 ft. south of U. S. Hy. 20, Spec. 2949. L. N. McClellan, Bldg. 1-a, Denver Federal Center, Denver, Colo., ch. engr.

Ont., Peterborough—CITY HALL—B.A. 4/5—Marani & Morris, archts., 1250 Bay St., Toronto, 2 story, bsmnt., T-shaped, 45x223 ft. main wing and other wing 80 ft. long stone, structural steel city hall, in Public Library block, George St., for City, E. A. Autrom, clk. Approx. $650,000. CD 8/12.

† **Del., Lewes**—QUARTERS—B. A. 4/6—U. S. Eng., First and Douglas Sts. N.W., Wash., 25, D. C., conversion to family quarters at Fort Miles, Eng 49-080-5-15-(18). Extended date. CD 3/10.

Ill., Chicago—POLICE STATION—B.A. 4/6—City, City Hall, Zone 2, police station, 300 E. 29 St. $250,000. CD 6/11/45.

Mass., Boston—HOUSING—B. A. 4/6—City of Boston Housing Auth., C. T. Kiley, chn., 230 Congress St., housing, State Aided Proj. 200-3, Brighton Section. Plans deposit, $100. Extended date. CD 1/12.

Mass., Stoughton—HOUSING—B.A. 4/6—Town of Stoughton Housing Auth., Stoughton, 26 unit veterans housing, Drake Ave. and Simpson St. Approx. $250,000. Plans deposit $50. Samuel Glaser Assoc., 105 Newbury St., Boston, archts. CD 2/17.

† **N. Y., Watertown**—BUILDINGS, etc.—B. A. 4/6—U. S. Eng., 80 Lafayette St., New York, Zone 13, buildings, utilities, near here.

N. C., Goldsboro—HOSPITAL—B.A. 4/6—Wayne Memorial Hospital, V. Grey Herring chn. Bd. Trustees, Court Room, Court House, 100 bed hospital addn., Proj. N. C. 55. Plans deposit $50 general, $25 each of other contracts. A. J. Maxwell, Jr., 509 Borden Bldg., archt. CD 2/3/48.

Wash., Renton—SCHOOL—B.A. 4/6—School Dist. 403, Renton, 3 story, 99x143 ft., rein.-con. and 52x52 ft. high school addns. Approx. $250,000. Mallis; DeHart & Hopkins, Lyon Bldg., Seattle, Zone 4, archts. CD 12/1/48.

Wis., Racine—HOME—B.A. 4/6—Racine Co., 2 story home for the aged, $300,000. Plans deposit $10. E. A. Klinger, Union Grove, archt. CD 12/15/48.

† **Conn., Naugatuck**—MOTOR VEHICLE STORAGE—B.A. 4/7—U. S. Eng., Army Base, Boston, Mass.; motor vehicle storage bldg. Serial NG 06-020-50-3. CD 2/17, under LB.

† **Conn., Southington**—MOTOR VEHICLE STORAGE—B.A. 4/7—U. S. Eng., Army Base, Boston, 10, Mass., motor vehicle storage, Serial No. NG 06-020-50-3. Extended date. CD 2/17, under LB.

Conn., Willimantic—HOSPITAL—B.A. 4/7—Windham County Community Hospital, Gilbert Williams, chn., 3 story, 45x112 ft. 1st floor and 45x75 ft. other 2 floors, brick, steel, concrete hospital addn., Mansfield Ave. $400,000. Crow, Lewis & Wick, 200 Fifth Ave., New York, N. Y., archts. CD 8/17/49.

Miss., Columbus—FACTORY—B.A. 4/7—City, factory, for C. W. Stuart Co. Plans deposit $25. Wm. I. Rosamond, Columbus, archt. CD 2/13.

Mich., Yipsilanti—SCHOOL—B.A. 4/10—Lincoln Consolidated School, school addn., $310,000. Plans deposit $20. Warren S. Holmes Co., 2200 Olds Tower Bldg., Lansing, archt.

Ore., Myrtle Point—SCHOOL—B. A. 4/10—School Dist. 41-C, Myrtle Point, 18-room, 45,00 sq. ft. pumic block school. Plans deposit $40. R. J. Keeney, 23 N. Central St., Medford, archt.

▲ **B. C., Trail**—SCHOOL—B. A. 4/10—Secretary, School Dist. 11, 1145 Cedar Ave., rein.-con. Senior High School., $1,000,000. Plans deposit $50. Sharp & Thompson, Berwick, Pratt, 1553 Robson St., Vancouver, archts.

Ala., Tuscaloosa—DORMITORY—B.A. 4/11—University of Alabama, Tuscaloosa, athletic dormitory. Miller, Martin & Lewis, Title Guarantee Bldg., Birmingham, archts. CD 11/28.

Calif., Avenal—HOSPITAL—B. A. 4/11—Avenal Hospital Dist., Avenal, 1 story, 23-bed, 12,772 sq. ft. wood frame hospital concrete slab floors. $300,000. Plans deposit $25. Fred L. Swartz & Wm. G. Hyberg, 624 Rowell Bldg., Fresno, archts. CD 3/28/49.

Calif., Chino—B.A. 4/11—RECEPTION CENTER—State Div. Architecture, P. Wks. Bldg., Sacramento, (1) general contract (2) heating and ventilating (3) plumbing (4) electrical work (5) combined plumbing heating and ventilating, 1, 2 and 3 story 147,000 sq. ft. reception center bldgs., at Chino State Prison. Plans deposit $100. Anson Boyd, Sacramento, state archt.

Calif., Oakland—SCHOOL—B.A. 4/11—Bd. Educ., 1025 2 Ave., 2 story, 38,000 sq. ft., rein.-con. Castlemont High School addn. and connecting passageway, $460,000. Plans deposit $25. Miller & Warnecke, Financial Center Bldg., archts. CD 2/14/45.

Calif., Stockton—MILK HOUSE, etc.—B. A. 4/11—State Div. Architecture, P. Wks. Bldg., Sacramento, rein.-con. milk house and boiler plant addns., at Stockton State Hospital. Plans deposit $25. Anson Boyd, Sacramento, state archt. CD 2/28/45.

La., Lafayette—POWER PLANT—B. A. 4/11—Mayor & Bd., City Hall, Proposal 1, power plant, Proposal 2, circulating water piping, Proposal 3, electrical work for municipal steam electric generating station. Plans deposit $50. Barnard & Burk, 314 Triad Bldg., Baton Rouge, engrs.

▲† **N. M., Los Alamos**—HOSPITAL—B.A. 4/12—U. S. Atomic Energy Comn., Los Alamos, hospital, Inv. No. 291-50-46, $2,000,000-$3,000,000. Plans deposit $50. Extended date. CD 2/7.

Calif., Glendale—SCHOOL—B. A. 4/13—City Bd. Educ., 411 E. Wilson St., 7 one story, brick, rein.-con. Thomas Jefferson School bldgs., $270,000. Graham Latta, 940 Alma St., archt. CD 8/29.

Ore., Portland—SCHOOL—B. A. 4/13—Multnomah School Dist. 1, 631 N. E. Clackamas St., Edwin Markham School. Richard Sundeleaf, Spalding Bldg., archt.

O., Perrysburg—SCHOOL—Bids Asked—Bd. Educ., Perrysburg, 1 story 20-room school with 500 seating capacity auditorium. $700,000. Plans deposit $25. Britsch & Munger, Nicholas Bldg., Toledo, archts. CD 11/25.

LOW BIDDERS

▲ **Calif., Berkeley**—CLASSROOM, etc.—Bd. Regents, University of California, Mar. 17, general contract, rein.-con. classroom and office, classroom portion 3 and 4 story, office 4 and 5 story, outside area 229,000 sq. ft., from Barrett & Hilp, 918 Harrison St., San Francisco, **$2,015,957;** mechanical work from Scott Co., 243 Minna St., San Francisco, **$378,853.** CD 2/20.

▲ **Conn., Norwalk**—HOUSING—City of Norwalk Housing Auth., John Cavannagh, acting chn., Mar. 14, 140 brick dwelling units, MR-27, Scribner Ave., from Frouge Constr. Co., Inc., 74 Goodsell St., Bridgeport, **$1,637,000.** CD 2/24.

Mo., Jefferson Barracks—HOSPITAL—U. S. Eng., Courthouse and Customhouse, St. Louis, Zone 1, Mar. 16, general contract Veterans Administration Hospital, CIVENG 23-065-50-63, from Peter Kiewit Sons' Co., 1950 S. Colorado Blvd., Denver, Colo., **$6,307,000;** 2 boiler houses, from General Installation Co., 950 Kingsland St., St. Louis, **$583,400.** CD 3/9.

▲ **Pa., Phila.**—TUBERCULAR—General State Auth., 18 and Herr Sts., Harrisburg, Mar. 15, general contract tubercular patients bldg. at Philadelphia (Byberry) State Hospital, from Wark & Co., 1700 Sansom St., **$1,644,770.** CD 2/20.

▲ **Tenn., Nashville**—SCHOOL—State Bd. Educ., State Office Bldg., Mar. 14, State School for Blind, from Rock City Constr. Co., 135 4 Ave. N. **$2,250,000.** CD 2/4, under Donelson.

▲ **Tex., Wichita Falls**—HOSPITAL—Wichita General Hospital, (City and Wichita Co.), Wichita Falls, cancelled bids to have been opened Mar. 28, hospital, **$1,300,000.** Will re-advertise. CD 2/28.

▲ **Wash., Richmond**—SCHOOL—School Bd., Richland, Chief Joseph Junior High School, from S. S. Mullen, Inc., 621 9 Ave. N. Seattle, **$1,067,800.** CD 3/9.

▲† **Alaska, Anchorage**—MILITARY INSTALLATION—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, Mar. 14, military installation at Fire Island, S95-507-50-6, from J. H. Pomeroy Co. Inc., 333 Montgomery St., San Francisco, Calif., **$2,695,795.** CD 2/3.

▲† **Alaska, Anchorage**—MILITARY INSTALLATION—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.), Anchorage, Mar. 15, bachelor officers' quarters, airmen's barracks, central heating and power plant, operations bldg., recreation bldg., etc. at Murphy Dome Military Proj. S95-507-50-7, from Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, and Peter Kiewit Sons Co., 1300 Aloha St., Seattle, Wash., **$3,313,113.** Est. 2,447,502. CD 2/3.

CONTRACTS AWARDED

▲ **Mass., Gardner**—HOSPITAL—Commonwealth of Mass., Dpt. Mental Health, 100 Nashua St., Boston, 3 story, brick, steel, concrete, limestone, granite Hospital PM-20, receiving bldg., Gardner State Hospital, to Tocci Bros. Constr. Co., 38 Colonial Ave., Newton, **$1,039,471**, Bids 3/2. CD 3/20, under LB.

▲ **Mass., Somerville**—HOUSING—City of Somerville Housing Auth., 139 Alewife Brook Parkway, 200-2 Veterans Housing Proj., Fiske Estate, Mystic Ave. and Turnpike, to Calumet Constr. Co., 50 Calumet St., Roxbury, **$2,120,262.** Bids 2/16. CD 2/24, under LB.

▲ **Wyo., Cheyenne**—OFFICE—State Capitol Bldg., 4 story, 46,800 sq. ft. state office, to Reidesel-Lowe Constr. Co., P. O. Box 762, Cody, **$1,073,500.** Bids 3/10, awarded 3/16. CD 3/16, under LB.

COMMERCIAL BUILDINGS

LOW BIDDERS

▲ **Ky., Camp Campbell**—HOUSING—Dpt. Army, Second Army, Ft. Meade, Md., 48 brick, houses, from Midwest Mortgage Co., 2545 S. Third St., Louisville, Zone 5, **$3,600,000**, CD 11/18.

CONTRACTS AWARDED

▲ **Ala., Mobile**—APARTMENT—Ryan Apartments, c/o contractor, 10 story 144 unit apartment, to Foster & Creighton Co., American Natl. Bank Bldg., Nashville, Tenn. Approx. **$1,000,000**.

▲ **Calif., San Mateo**—RESIDENCES—David D. Bohannon Organization, 859 San Mateo Dr., 240 residences in Hillsdale 4A, Murray Ranch near 31 Ave. and Monterey St. Owner builds. **$4,000,000**. Edwin Wadsworth, 859 San Mateo Dr., archt.

▲ **Fla., Tallahassee**—HOTEL—Manghum-Butler Constr. Co., 3128 Coral Way, Miami, 7 story, 132 room modern hotel. Owner builds. **$1,056,000**. CD 1/6.

▲ **Ill., River Forest**—STORE—Wieboldt Stores, Inc., Lake and Harlem Sts., 3 story, 75,000 sq. ft. department store addn., 1 story, 100,000 sq. ft. parking facility, to R. C. Wieboldt Co., 2353 Blue Island Ave., Chicago, Zone 8. **$1,200,000**. Holabird & Roots, Burgee, 180 N. Wabash St., Chicago, Zone 1, archts.

▲ **La., Shreveport**—APARTMENT—Caddo Arms, c/o contractor, 14 story apartment, to Shelby Constr. Co., 4320 Parish Ave., New Orleans. **$3,000,000**.

▲ **N. J., Pleasantville**—APARTMENT DEVELOPMENT—Goodwin Constr. Co., Barrington, apartment development, Delilah Rd., separate contracts. **$2,000,000**. Edward A. L. Cox, 709 Market St., Camden, archt.

▲ **N. Y., Elmhurst**—APARTMENT—Woodbriar Manor, Inc., c/o Julius Fishkind, archt. 161-19 Jamaica Ave., Jamaica, 6 story apartments, Denman St. northwest corner of and southwest corner of Elmhurst Ave. **$568,000** and **$977,000** respectively; Elbertson St., northwest corner of Britton Ave., **$685,000**; Elbertson St. northeast corner of Elmhurst Ave., **$488,000**; Denman St., southeast and northeast corner of Elmhurst Ave. **$543,000** and **$713,000** respectively. Owner builds. Grand total $3,974,000. CD 3/10.

▲ **N. Y., Far Rockaway**—APARTMENTS—Gustave M. Berne, c/o Lester H. Maxon, 509 Madison Ave., New York, Zone 22, four 6 story apartments, Seagirt Ave. and Beach 20 St. **$1,860,000**; 10 six story apartments, Seagirt Ave. and Beach 20 St. **$7,000,000**. Owner builds. CD 3/16.

▲ **N. Y., Rego Park**—APARTMENT—Samuel Lefrak, c/o Julius Fishkind, archt., 161-19 Jamaica Ave., Jamaica, 6 story apartment, 66 Ave. and 102 St. **$700,000**; 6 story apartment, Saunders St. and 64 Rd. **$935,000**., 6 story apartment., 64 Ave. west of 98 St., **$750,000**. Owner builds. Grand total $2,385,000. CD 3/16.

▲ **N. C., Raleigh**—RETAIL STORE—Sears, Roebuck & Co., 675 Ponce de Leon Ave., Atlanta, Ga., retail bldg. to Henry C. Beck, 1st Natl. Bank Bldg., Atlanta, Ga. Est. **$1,000,000**. Bids 2/17. CD 2/10.

▲ **O., Cleveland**—HOMES—Alex Zaremba & Son, 6576 York Rd., Parma, one hundred eleven 1½ story, frame homes, Metropolitan Dr., separate contracts. **$1,000,000**. Damon Worley & Assoc., 926 Engineers Bldg., archts.

▲ **O., Euclid**—APARTMENT—Greenwood Acres, 2154 E. 22 St., Cleveland, 2 story, bsmnt. 139 suite, brick, block, steel apartment, to W. B. Constr. Co., 2154 E. 22 St. Cleveland, Approx. **$1,250,000**. CD 12/16.

▲ **O., Lakewood**—OFFICE—White Sewing Machine Co., 1231 Main St., Cleveland, office and service bldg., 11720 Berea Rd., to Sam W. Emerson Co., 1836 Euclid Ave., Cleveland. Est. **$1,000,000**. CD 12/16.

▲ **Pa., Larchmont**—RESIDENCES—Irving A. Miller, West Chester Pike, Newtown Square, residential development, Barren Rd., separate contracts. Approx. **$1,000,000**.

▲ **Pa., Springfield**—RESIDENCES—Murray & Schmicker, 545 N. 63 St., Phila., residential development, new streets, separate contracts. **$1,000,000**. Erling H. Wenge, McClatchy Bldg., Upper Darby, archt.

▲ **Pa., Willow Grove**—RESIDENCES—Walter J. Logan, 1221 N. Conestoga St., Phila., residential development, Overlook St., separate contracts. **$1,335,000**.

▲ **S. D., Sioux Falls**—APARTMENTS—Sherman Park & Country Club, Sheldon F. Reese, pres. and mgr. for Sioux Housing Corp., Sioux Falls, apartments, to Acme Concrete Co., 317 Western Surety Bldg., **$1,300,000**.

▲ **Tex., Beaumont**—HOUSING—Holliday Constr. Co., 2990 Crockett St., 250 low-income housing units for Whites. Owner builds. Approx. **$1,718,750**. CD 3/16.

▲ **Tex., Pasadena**—DWELLINGS—George W. Batten Co., 1620 Missouri St., Houston, 275 dwellings, Berkshire Village, own forces. Approx. **$2,475,000**. A. B. Moore Eng. Co., 300 S. Main St., Houston, project engr. CD 3/2.

▲ **Wash., Seattle**—STORE—Marshall Field & Co., 25 E. Washington St., Chicago, Ill., heating, ventilating and plumbing work Frederick & Nelson Dept. Store addn., to University Plumbing & Heating Co., 3939 University Way **$1,000,000**; elevators and escalator installation, to Otis Elevators Co., 220 4 Ave. **$400,000**. CD 1/3.

INDUSTRIAL BUILDINGS

CONTRACTS AWARDED

▲ **La., New Orleans**—SERVICE, etc.—Krauss Co., Ltd., c/o contractor, 6 story service bldg., 6 story dept. store addn., to R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., **$1,371,000**. Bids 3/9, awarded 3/14. CD 3/14, under LB.

▲ **Mich., Albion**—PLANT—Corning Glass Works, Woodlawn Ave., Corning, N. Y., 300,000 sq. ft. plant for mfg. television bulbs, to Ditmars-Dickmann-Pickens Constr. Co., Muskegee, Okla., and Gazette Bldg., Little Rock, Ark. Est. **$3,000,000**. H. K. Ferguson Eng. Co., 11 and Walnut Sts., Cleveland, O., engr.

▲ **Mo., St. Louis Co.**—PLANT—Union Electric Co. of Missouri, 315 N. 12 Blvd., St. Louis, Zone 1, rein.-con., steel steam and power plant, warehouse, pump house, office, locker rooms, near junction of Meramac and Mississippi Rivers, southern part of St. Louis Co., to United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa., **$26,000,000**. CD 5/2.

▲ **Wis., Kenosha**—PLANT—Nash Motors Div., Nash Kelvinator Corp., Kenosha, design and construction, 2nd story, 205,000 sq. ft. plant addn., to Austin Co., 16112 Euclid St., Cleveland, O., **$5,000,000**. CD 8/4/48.

UNCLASSIFIED

BIDS ASKED

Va., Kiptopke Beach—FERRY TERMINAL—B.A. 4/3—Virginia Ferry Corp., c/o Lester C. Tichy, archt., 369 Lexington Ave., New York 17, N. Y., ferry terminal.

Massachusetts—TRAFFIC SIGNALS—B.A. 4/4—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, furnishing, installing traffic signals, Wellesley, Bourne, Falmouth Orleans and Wellfleet. Plans deposit $5. P. H. Kifield ch. engr.

† **Missouri**—SHELTER—B. A. 4/4—U. S. Eng., 300 Broadway, Little Rock, Ark., overlook shelter, Clearwater Dam Site, CIVENG 03-050-50-77.

† **Virginia and North Carolina**—RAILROAD RELOCATION—B.A. 4/4—U. S. Eng., foot of Front St., Norfolk Va., relocating Southern Ry., Jeffress to Clarksville Buggs Island Reservoir Proj., Serial No. CIVENG 44-110-50-52. Extended date. CD 2/14.

† **Va., Arlington**—CEMETERY DEVELOPMENT—B.A. 4/4—U.S. Eng. First, and Douglas Sts. N. W., Wash. 25, D. C., development Sect. 28 at Arlington National Cemetery, Eng 49-080-10-18 (22).

Ill., Chicago—SWIMMING POOL—B.A. 4/5—Chicago Park Dist., 425 E. 14 St., Zone 5, swimming pool, 14 and Union Sts., $75,000. Charles W. Schroeder, 425 E. 14 St., Zone 5, archt. CD 6/11/45.

Louisiana—CABLE FERRY—B.A. 4/5—State Dpt. Hys., Baton Rouge, cable ferry over Belle River, grading, timber bridges, shell surf. course 0.105 mi., 54x20x3½ ft. welded steel ferry barge, ferry operating units, etc., State Rte. 170, State Projs. 232-02-13 and 735-00-13, Assumption and St. Martin Parishes, Plans deposit $4.50.

Pa., East Stroudsburg—FIRE TOWERS, etc.—B.A. 4/5—General State Auth., 18 and Herr Sts., Harrisburg, general contract and electrical work for fire towers and fire proof stairways to remove fire hazards at Stroud Hall, East Stroudsburg State Teachers College. $98,400. Plans deposit $5 each. Rinker & Kiefer, 7 and Monroe Sts., Stroudsburg, archts. A. F. Jones, c/o owner, ch. engr.

† **Va., Norfolk**—PARKING FACILITIES—B.A. 4/5—Pub. Wks. Office, Fifth Naval Dist., U. S. Naval Base Norfolk, Zone 11, parking facilities at the U. S. Naval Base, NOY 20424, Spec. 23898. Plans deposit $10.

† **Vt., North Shrewsbury**—RIFLE RANGE—B.A. 4/5—U. S. Eng., Bldg. 21, Naval Drydock, South Boston, Mass., rifle range at Coolidge State Forest. Serial No. 43-007-NG-2-50. Extended date. CD 3/10.

† **W. Va., Beckley**—LANDSCAPE IMPRVT.—B.A. 4/5—U. S. Eng., Huntington 18, landscape imprvt. of Veterans Administration Hospital, Serial No. CIVENG-46-022-50-82.

† **Arizona and Nevada**—TANK, etc.—B. A. 4/6—Bureau Reclamation, Dpt. Interior, Aviola Bldg., Phoenix, Ariz., furnishing, erecting 75,000 gal. elevated tank for fire protection and domestic water sys., Coolidge substation, Davis Dam Proj., approx. 1½ mi. north of Collidge, Ariz., Spec. 2934. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

† **North Dakota**—TRANSMISSION LINES—B. A. 4/6—Bureau Reclamation, Dpt. Interior, Bismarck, Voltaire-Rugby-Devils Lake-Carrington-Jamestown 115 kilowatt transmission lines, Transmission Div. Missouri River Basin Proj., between Voltaire, Devils Lake and Jamestown, Spec. 2935.

LOW BIDDERS

▲† **Puerto Rico, Sabana Seca**—RADAR INSTALLATION—Yards & Docks Annex, Navy Dpt., Arlington, Va., adn. to communications center for radar installation, from Harrison-Wright Co., Inc., 116 W. 3 St., Charlotte, N. C., and Puerto Rico, **$1,157,650**.

CONTRACTS AWARDED

Colo., Littleton—GRANDSTAND—Centennial Turf Club, c/o Roy D. Barnes, pres., E & C. Bldg., Denver, 102x440 ft. grandstand for race track, to Continental Constr. Co., Denver National Bldg., Denver, **$400,000**. Bids 10/26, awarded 3/3. CD 10/27.

Oklahoma—OIL LINES—Great Lakes Pipe Line Co., Drawer 3339, Kansas City, Mo., 45 mi. 8 in. oil line between Cushing and Tulsa, to Trojan Constr. Co., Cushing, Approx. **$475,000**. CD 8/24.

Proposal Advertisements see pp. 65 to 67

OFFICIAL PROPOSALS

Bids: April 25, 1950 (657)

Filtration Plant Extension and High Service Pumping Station

CITY OF ALLENTOWN, PENNSYLVANIA
Department of Parks and Public Property
Bureau of Water

Sealed proposals addressed to the City Council of Allentown, Pennsylvania, for Construction of Filtration Plant Extension and High Service Pumping Station, will be received at the office of the City Clerk, Room 202, City Hall, Allentown, Pennsylvania, until 10 A.M., Tuesday, April 25, 1950, and will be publicly opened and read aloud at a meeting of the City Council in the Council Chambers, City Hall, immediately thereafter.

The work will be divided into three (3) contracts. A combined bid however may be submitted for Contracts Nos. 1 and 2.

Contract No. 1
Structures, Piping and Appurtenances
Contract No. 2
Filter Equipment, Piping and Appurtenances
Contract No. 3
Pumping and Electrical Equipment and Appurtenances

Plans and Specifications, Form of Contract and Bidding Blanks for each contract are on file and open to public inspection and may be examined and obtained at the office of the Bureau of Water, City Hall, Allentown, Pennsylvania, or at the office of Morris Knowles Incorporated, Engineers, 1312 Park Building, Pittsburgh, Pennsylvania. The plans and specifications may be obtained at either of said offices for use in preparing a bid, by depositing Fifty Dollars ($50.00) for each set. If the plans and specification are returned in good condition, within two weeks after the date set for the opening of bids, the full amount of the deposit for one set will be refunded to each actual bidder. Other deposits will be refunded with a deduction of Twenty-five Dollars ($25.00) for each set of plans and specifications to defray the actual cost of reproduction. If the plans and specifications are not returned within the time stated, the entire amount of deposit will be forfeited.

The right to waive any informality in any bid; to accept any bid; or to reject and or all bids is reserved by The City Council of Allentown, Pennsylvania.

No bid may be withdrawn for sixty (60) days after the scheduled closing time for receipt of bids.

Each proposal shall be accompanied by a certified check in an amount of not less than five (5%) per cent of the total of the bid submitted in the form and subject to the conditions provided in the Information for Bidders. The bidder to whom a contract is awarded will be required to furnish, for the faithful performance of the work thereunder, an approved Surety Company Performance Bond in an amount equal to 100 per cent of the total of the bid submitted and a separate approved Surety Company Labor and Materialmen's Bond in an amount equal to 50 per cent of the total of the bid submitted.

George W. Kistler
City Clerk

(Continued on page 66)

Read the Official

Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

OFFICIAL PROPOSALS

Bids: April 18, 1950 (655)

New Jersey Turnpike Authority

CONTRACTS NOS. 18, 18A and 18B

The work to be performed under these Contracts involves the clearing and grubbing of site including demolition of all buildings, sheds and other structures within the Right-of-Way of the Turnpike indicated on the Plans to be demolished; excavation of earth and rock; furnishing, placing and compacting various graded borrow excavation materials in embankments; stabilizing existing ground by the use of vertical sand drains in indicated areas; excavating portions of embankment and overload and depositing the materials so excavated on the embankments; providing underdrains and culverts for drainage; other incidental work in connection with the construction of the New Jersey Turnpike from Wiegands Lane in the Town of Secaucus, Hudson County, to the south abutment of bridge over the New York Susquehanna and Western-West Shore (New York Central) railroad yards, in the Borough of Ridgefield, Bergen County: including approach ramps to and from Lincoln Tunnel, in the Township of North Bergen, Hudson County, New Jersey.

Principal items of work for Contracts Nos. 18A and 18B.

		Contract 18A	Contract 18B
Clearing and grubbing	lump sum	......	......
Roadway excavation, earth	cu.yds.	301,500	61,100
Roadway excavation, rock	cu.yds.	30,000	......
Roadway excavation, muck	cu.yds.	3,500	10,000
Roadway excavation, dump	cu.yds.	65,000	
Borrow excavation	cu.yds.	960,000	2,100,000
Vertical sand drains	lin.ft.	481,500	1,240,000
Channel excavation	cu.yds.	440	150,800
Underdrains (various sizes)	lin. ft.	6,240	
Storm drains (various sizes)	lin. ft.	4,800	1,600

Principal items of work for Contract No. 18 equal the sum of the quantities listed for Contracts Nos. 18A and 18B.

If the bidder submits Proposals for more than one contract, a single Proposal Guaranty consisting of one check and one bond, based on the largest amount of work included in a combination of the Proposals, will be sufficient.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, after March 27, 1950, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey, and at the office of the Engineers, Edwards and Kelcey, Frederic R. Harris, Inc., and O. J. Porter & Company, Associated, 3 William Street, Newark, New Jersey.

Each set of Contract Documents comprising Contracts Nos. 18A, 18B and 18 will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and Contract Documents are not required to be returned. Plans showing grading cross-sections may be examined at the office of the Authority or at the office of the office of the Engineer.

The Contracts will be awarded or proposals rejected within fifteen (15) days from the date of opening proposals. The right is reserved to reject any or all proposals.

• • •

CONTRACT NO. 21

The work to be performed under this Contract involves the construction of seventeen (17) steel and concrete structures and incidental work in connection with the construction of the New Jersey Turnpike, Section 4, between Allentown and Prospect Plains, in Mercer and Middlesex Counties, New Jersey.

Principal items of work include:

Open foundation excavation	10,100 cu.yds.
Concrete	11,300 cu.yds.
Reinforcement steel	1,400,000 lbs.
Structural steel	3,600,000 lbs.
Concrete bearing piles	33,600 lin. ft.
Railing	6,700 lin.ft.
Pipe drains	2,560 lin.ft.
Pipe conduit	16,470 lin.ft.

Contract documents may be seen, and may be inspected by prospective bidders during office hours on and after March 24, 1950 at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey, and at the office of the Engineers, De Leuw, Cather & Company, 106 Mercer Street, Hightstown, New Jersey.

Contract documents will be furnished for $5.00 for each set upon application to the Authority. The payment will not be refunded and contract documents are not required to be returned.

• • •

The receipt and opening of proposals for Contracts Nos. 18, 18A, 18B and 21 is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal a revised financial statement and a statement of plan and equipment.

Proposals for Contracts Nos. 18, 18A, 18B and 21 will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, until 10:30 o'clock on the morning of April 18, 1950, and thereafter in the Veterans Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey, until 11:00 A.M., on the same date, at which latter time and place said proposals will be publicly opened and read.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications for Construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the Contract on the outside, and must be accompanied by a *certified check* drawn to the order of the New Jersey Turnpike Authority *and a proposal bond, each for not less than five (5) per cent of the amount of the proposal*, but not less than $500.00 nor more than $200,000.00, and must be delivered at the above place on or before the hour named. Copies of the proposal form to be used for submitting proposals, of the form of proposal bond, of the form to be used for financial statement and plan and equipment statement to be submitted with proposal, and special addressed envelope are furnished in detached form with the Contract Documents.

The Contracts Numbered 18, 18A, 18B and 21 will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

March 24, 1950

Bids: April :1, 1950 (656)

New Mound Park Hospital

St. Petersburg, Florida

Sealed proposals will be received by the City of St. Petersburg, Florida, at the office of the City Manager, in the City Hall, St. Petersburg, Florida, until 11:00 o'clock A.M. (EST), Monday, May 15, 1950, for the furnishing of all labor, equipment and materials for the construction of the New Mound Park Hospital, at which time they will be publicly opened and read aloud. Plans, specifications and contract documents are open to public inspection at the office of the City Engineer, Room 211, City Hall on and after April 1, 1950, or may be obtained from that office upon deposit of Fifty ($50.00) Dollars. The full amount of the deposit for one set of documents will be returned to each actual bidder, and all other depositors will be refunded Twenty-five ($25.00) Dollars upon return of all documents in good condition within thirty (30) days after the date of opening of the bids. All proposals shall be on standard forms furnished by the City Manager and shall be sealed and marked: "PROPOSAL FOR CONSTRUCTION OF THE NEW MOUND PARK HOSPITAL."

Bids must be accompanied by a certified check or bid bond in the amount of not less than five (5%) percent of the bid. No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of thirty (30) days. The City of St. Petersburg reserves the right to reject any or all bids and to waive informalities and irregularities.

CITY OF ST. PETERSBURG, FLORIDA
Ross E. Windom
City Manager

Bids: April 18, 1950 (654)

Port Jervis Sewerage System

CONTRACTS 380 and 381

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A. M., Eastern Standard Time, on Tuesday, April 18, 1950, for Contracts 380 and 381, for the construction of the intercepting sewers, force mains, pumping stations and sewage treatment plant of the Port Jervis sewerage system, in the City of Port Jervis, Orange county, New York, all as set forth in the specifications. CONTRACT 380 will consist of about 5,255 feet of 10-inch, 12-inch and 15-inch vitrified pipe and about 2,980 feet of 16-inch cast iron pipe for the intercepting sewers, about 1,190 feet of 16-inch and about 915 feet of 8-inch cast iron force mains, two river crossings totaling about 370 feet in length, and appurtenances. CONTRACT 381 will consist of the North Street and Neversink sewage pumping stations and a sewage treatment plant comprising a pumping station for industrial wastes, main building, Imhoff tanks, high-rate trickling filters, recirculating pump structure, secondary settling tanks, glass-enclosed sludge drying beds, chlorine equipment and contact tank, Venturi meter, fine screens, pumps, piping and other equipment and appurtenances.

Sets of information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., of each contract can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of $5.00 in cash or its equivalent for each set. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each set submitted as a bid and a refund of $4.00 will be made for each other set returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, HENRY HESTERBERG, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2955) will be received by Bureau of Reclamation, Cody, Wyoming, April 20, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of Alcova-Boysen 115-kilovolt transmission line, Transmission Division, Wyoming, Missouri River Basin Project. The work is situated in Fremont and Natrona Counties, Wyoming. The transmission line will be 3-phase, single-circuit, wood-pole, H-frame type, approximately 100 miles long with 2 overhead ground wires. Time allowed for completion will be 300 days. For particulars, address Bureau of Reclamation, Cody, Wyoming; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner
(648)

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Channel Improvement on Red Lake River, Minnesota, Stage No. 4, will be received in this office until 11:00 A.M., C.S.T., 11 April 1950 and then publicly opened. Further information upon application. (650)

BIDS FOR ERECTION OF DRAGLINE GRADER MACHINES—Memphis District, Corps of Engineers, U. S. Army, P. O. Box 97, Memphis 1, Tenn. Sealed bids will be received here until 2:00 p.m., C.S.T., April 13, 1950, and then publicly opened, for the erection of two dragline grader machines on two steel barges. Information on request. (640)

(Continued on page 67)

OFFICIAL PROPOSALS
(Continued from page 66)

Bids: June 30, 1950 (652)

Big Eildon Project

STATE RIVERS AND WATER SUPPLY COMMISSION, VICTORIA, AUSTRALIA

TENDERS are invited from organizations experienced in the construction of large civil engineering works for the construction of the *BIG EILDON DAM* at Eildon in the State of Victoria, Australia.

The construction of the dam will involve the excavation and placing of approximately 13,000,000 cubic yards of earth and rockfill in embankment with a maximum height of about 260 feet, approximately 300,000 cubic yards of concrete work, outlet and control works and appurtenant structures, including a *PONDAGE WEIR* about three miles below the dam.

Contracting organizations are invited to submit *TENDERS* for:—

(a) A Schedule of Rates Contract;

or

(b) A Cost-Plus Contract based on a "Target Estimate" to be submitted by the tenderer.

EXHIBITION DOCUMENTS comprising *GENERAL CONDITIONS OF CONTRACT, PLANS AND SPECIFICATIONS AND CONDITIONS OF TENDERING* together with engineering and geological reports, and general information concerning prevailing wages, rates and employment conditions are available at £10.10.0 per set and will be forwarded to bona fide prospective tenderers on receipt of written applications, enclosing cheque, addressed to—

The Secretary,
State Rivers and Water Supply Commission;
100-110 Exhibition Street,
MELBOURNE, C.1.,
VICTORIA, AUSTRALIA.

or

The Agent-General for Victoria,
Melbourne Place,
Strand,
LONDON, ENGLAND.

TENDERS endorsed "Tender for Construction of Big Eildon" will be received by the Secretary, State Rivers and Water Supply Commission at 100 Exhibition Street, Melbourne, until 12 noon on June 30, 1950. A preliminary deposit of £A1,000, payable at Melbourne, must be lodged with the tender and will subsequently be refunded to unsuccessful tenderers.

Lowest or any tender not necessarily accepted.

Bids: April 5, 1950 (651)

Airport Work

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS DEPARTMENT OF FINANCE, DIVISION OF PURCHASES

NOTICES TO CONTRACTORS

Sealed proposals addressed to the Division of Purchases, for doing the work required under R. I. Contract No. 9120-42-2—T. F. Green, will be received by the Division of Purchases at the office of the State Purchasing Agent, Room 123, State House, Smith Street, Providence, R. I., until 10:00 a.m. (EST) on the 5th day of April, 1950, at which time the proposals will be opened publicly and read.

The contract work shall consist of runway and taxiway construction and appurtenant work at the Theodore Francis Green Airport, Warwick, R. I., said work to be,—

Construction of Parallel NE-SW Runway—Portland Cement Concrete with air entrainment. Length 5465.86 feet. Width 200 feet. Crushed gravel sub-base.

Construction of a Taxiway between the respective southwest ends of the NE-SW and Parallel NE-SW Runways. Asphaltic concrete surface and binder course on Crushed Gravel sub-base. Length 1575 feet. Width 60 feet.

Widening and re-shaping surfaces of Parallel EW Taxiway, Parallel NW-SE Taxiway and the Diagonal Taxiway extending from the northeast end of the NE-SW Runway to the intersection of Parallel NE-SW and existing NW-SE Runways. Asphaltic concrete surface and binder course on Crushed Gravel sub-base. Length 5300 feet. Widening 20 feet. Re-Shaping width 60 feet.

Bids for the above work must be made on blanks furnished by the Department of Public Works, Division of Aeronautics. Plans, Specifications and Special Provisions may be examined at Room 123, State House, or Room 224, State Office Building, Providence, R. I., on or after March 22, 1950 every week day except Saturdays and Holidays, between the hours of 8:30 a.m. and 4:30 p.m. Blanks for submitting Proposals may be obtained through the office of the State Purchasing Agent at the address above stated. A deposit of $25.00 for contract documents shall be made, which will be refunded if Plans and Specifications are returned in good condition prior to April 19, 1950.

A certified check or bid bond payable to the State of Rhode Island, or cash, in the amount of $75,000.00 must be furnished by each bidder. The Proposal Guaranty will be returned after the Contract has been executed. A performance bond of one hundred (100) per cent of the contract price with a satisfactory surety company will be required of the successful bidder. The Division of Purchases reserves the right to reject any or all bids.

EMPLOYMENT LISTS: A local employment service has been designated by the R. I. Employment Service to prepare the employment lists for the projects. Requests for men to be employed on the project shall be submitted to the District Offices at 112 Union Street, Providence, R. I.

WAGES OF LABOR: In conformity with the provisions of Chapters 290 and 291, General Laws, 1938, the minimum wages for a day's work paid mechanics, teamsters and laborers shall not be less than the customary and prevailing rate of wages for a day's work in the same trade or occupation in the locality where the work is undertaken. Such a schedule of wages has been established on a minimum hourly basis and is on file in the office of the State Department of Labor. However, Rates of Wages on file shall not be less than those predetermined by the U. S. Secretary of Labor, a schedule of such rates being included in the contract documents.

SUBLETTING OR ASSIGNING CONTRACT: The attention of bidders is directed to the Standard Specification and/or Special Provisions covering subletting or assigning the contract.

C. A. A. PARTICPATION: The attention of bidder is directed to the financial participation by the Civil Aeronautics Administration in the construction costs for the contract work, and accordingly, all contract work performed and payments to be made for such performance of contract work shall all be subject to the inspection and/or approvals that may be required by the said Civil Aeronautics Administration.

DEPARTMENT OF FINANCE,
DIVISION OF PURCHASES
BY:
(s) Franklyn A. Adams
State Purchasing Agent

Bids: April 11, 1950 (653)

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:

CONTRACTS NOS. 3, 3A and 3B

The work to be performed under these Contracts involves grading; drainage structures; overpass, underpass, and stream bridge structures; and incidental work in connection with the construction of the New Jersey Turnpike, Section 1, between Deepwater and Woodbury, in Salem and Gloucester Counties, New Jersey.

Principal items of work for Contracts Nos. 3A and 3B include:

	Contract No. 3A	Contract No. 3B
Clearing and grubbing	80 acres	63 acres
Excavation and grading	2,073,080 cu.yds.	2,119,570 cu.yds.
Compaction of in-place material	429,000 cu.yds.	420,000 cu.yds.
Topsoiling	384,000 sq.yds.	384,000 sq.yds.
Gravel surface course	4,400 cu.yds.	4,700 cu.yds.
Calcium chloride	49 tons	70 tons
Concrete	12,285 cu.yds.	11,200 cu.yds.
Reinforcement steel	1,604,300 lbs.	1,645,000 lbs.
Reinforced concrete pipe, various sizes	4,965 lin.ft.	7,530 lin.ft.
Corrugated metal pipe, various sizes	1,445 lin.ft.	1,055 lin.ft.
Structural steel	3,100,000 lbs.	2,700,000 lbs.
Concrete piles	34,600 lin.ft.	41,500 lin.ft.

Principal items of work for Contract No. 3 equal the sum of the quantities listed for Contracts Nos. 3A and 3B.

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey, until 10:30 o'clock on the morning of April 11, 1950 and thereafter in the Veteran's Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey until 11:00 A.M. on the same date, at which latter time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal a revised financial statement and a statement of plan and equipment. Contract documents may be seen, and be inspected by prospective bidders during office hours, after March 17, 1950 at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey and at the office of the Engineers, J. E. Greiner Company, 1201 St. Paul Street, Baltimore, Maryland.

Contract documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and contract documents are not required to be returned. Plans showing grading cross sections may be examined at the office of the Authority or at the office of the Engineers.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications for Construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the Contract on the outside, and must be accompanied by a *certified check* drawn to the order of the New Jersey Turnpike Authority *and a proposal bond, each for not less than five (5) percent of the amount of the proposal*, but not less than $500.00 nor more than $200,000.00, and must be delivered at the above place on or before the hour named. Copies of the proposal form to be used for submitting proposals, of the form for proposal bond, of the form to be used for financial statement and plan and equipment statement to be submitted with proposal, and special addressed envelope are furnished in detached form with the Contract Documents.

The Contracts will be awarded or proposals rejected within fifteen (15) days from the date of opening proposals. The right is reserved to reject any or all proposals.

NEW JERSEY TURNPIKE
AUTHORITY
Paul L. Troast
Chairman

March 17, 1950.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2951) will be received by Bureau of Reclamation, Tracy, California, April 18, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, concrete lining, and structures for Newman wasteway, Station 1+79 to Station 432+70, and earthwork and structures for service lateral, Station 1+40 to Station 148+25, Delta-Mendota Canal, Central Valley Project. The work is situated near Newman, California. Principal items are approximately: 2,600,000 cu. yds., excavation; 16,600 cu. yds., concrete; 10,000 lin. ft., piling; 40,000 lbs., gates and metalwork; 211,000 lbs., structural steel for bridges; and other work. The work is divided into 2 schedules. Time allowed for completion will be 500 days. For particulars, address Bureau of Reclamation, Tracy, California; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
(649)

CONTRACTORS

Watch this Section

for New Projects

Publish your announcement thru the "Proposals Section" of Engineering News-Record and get their bids.

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • **OPPORTUNITIES** • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:

(Not available for equipment advertising)

$1.20 cents a line, minimum 4 lines. To figure advance payment count 5 average words as a line.

INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.00 a line an insertion.

INFORMATION.

BOX NUMBERS care publication New York, Chicago or San Francisco offices count as 1 line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads. (not including proposals).

DISPLAYED—RATE PER INCH:

The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS received by April 3rd will appear in April 13th issue subject to limitation of space available.

SALES MANAGER

Internationally known engineering and building firm specializing in Industrial Plant work, with main offices in the Midwest, offers a splendid opportunity for an exceptionally experienced Sales Executive.

The applicant chosen will coordinate all sales efforts for the company. Duties will involve development of new prospects and maintenance of superior sales relations with customers.

Applicants must be a proven organizer, administrator and should have design and construction experience on industrial plants as well as sales experience.

If you have qualifications fitting these requirements please mail a complete confidential resume, stating your past experience, education and salary requirements.

P-2470, Engineering News Record
330 W. 42nd St., New York 18, N. Y.

SALESMAN

Need top flight shovel and crane salesman who can produce in Metropolitan New York area. Will sell one of leading lines. Applicant must state experience, record, age and remuneration expected, in detailed resume for consideration. Our Sales Force has been notified of this ad. All replies held in strict confidence.

SW-2378, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

COST ENGINEER

Responsible position available in Midwest Office of nationally known engineering and building firm for Cost Engineer with several years field experience and actual knowledge of current construction costs for all types building and industrial process work. Good salary and opportunity for the qualified applicant.

Send detailed summary of experience and education together with statement regarding salary requirement and date available. All replies strictly confidential.

P-2471, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

ESTIMATOR Wanted

Experienced in heavy Grading, Paving, Sewers and Bridges. Splendid opportunity with growing concern. Location Long Island, New York. State age, experience, salary, and full particulars.

P 6041, Engineering News Record
330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT
WANTED
HEAVY CONSTRUCTION

By large contractor operating throughout the Middle West for Permanent position. Must have at least ten years' continuous experience with leading contractors in heavy excavation, heavy concrete, cofferdam and similar work and furnish unquestionable references along these lines. Starting Salary $150.00 per week. In replying state age, education, short outline of experience (including name and duration of employment with last three employers who will not be contacted without your consent.)

P-6035, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEER, LICENSED
in New York State
Also Sales Engineer

Experienced in bridge construction and alterations. Permanent position for right man. Reply stating experience to

P-6106, Engineering News Record
330 W. 42nd Street, New York 18, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

WANTED: ARCHITECT with building construction experience or an architectural engineer to advise in preparation of plans, review drawings, supervise construction, etc., under Hill-Burton Act. State experience, age and salary required. Address: The Commissioner, Tennessee Department of Public Health, 420 Sixth Avenue North, Nashville, Tenn.

WANTED: RECENT graduate Civil Engineer, for position of Office Engineer in City Engineer's Office in city of 30,000 population. Apply by letter, stating age, education and salary requirements. Enclose recent photo. CS-6115, Engineering News-Record.

POSITIONS VACANT

CIVIL ENGINEER wanted for a responsible permanent position with a large public utility located in eastern Pennsylvania. Must have a broad experience, a substantial portion of which has been in hydraulics. The position presents an excellent opportunity to the right man. Apply by letter stating age, education, detailed experience and salary requirements. P-2275, Engineering News-Record.

WANTED: EXPERIENCED Structural Designers capable of taking responsible charge of work. Seelye, Stevenson & Value, 101 Park Avenue, New York, N. Y.

WANTED: SUPERINTENDENT of Maintenance. Large national manufacturer has opening available for Maintenance Superintendent for bauxite mines in Arkansas. Prefer a man with a Mechanical Engineering Degree or background who is thoroughly versed in the handling and maintenance of shovels, tractors, drills, hoists, and other mining equipment. Send resume, including age and salary expected to P-6096, Engineering News-Record.

ESTIMATOR WANTED by general contracting firm location on the North Shore of Long Island. Applicant to be experienced in estimating all types of general building construction. If interested advise age, education, experience and salary desired. P-6103, Engineering News-Record.

WANTED
BRIDGE DESIGNERS, DESIGNER DRAFTSMEN, RESIDENT HIGHWAY ENGINEERS, SOILS ENGINEER

Experienced men wanted. State qualifications, age, salary and date available in first letter. Construction period, 24 months. Location, Eastern or Western Pennsylvania.

P-2412, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

STRUCTURAL STEEL ESTIMATOR

Well known New England fabricating company has an exceptional opening for young experienced structural steel estimator. A real opportunity exists for a man with estimating and sales ability. Give in detail experience, education, etc. References will be required. Replies held strictly confidential.

P-6047, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

WANTED SUPERINTENDENT

for sewage and waterworks by old and well-established firm, operating principally in Indiana, but planning expansion. Write only for interview. State age, experience, qualifications, reference and salary expected.

P-2548, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS VACANT

EUROPEAN STEEL Producer wants Engineer experienced with sheet piling for selling on commission basis. Submit references. P-6137, Engineering News-Record.

GRAVEL PLANT Superintendent. Wanted for operating and managing portable and permanent plants in Indiana and Michigan. State experience, references, and salary. P-6085, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT — Experienced man wanted for building construction work. Firm located in New England. In reply give experience, references, education and salary expected. P-6126, Engineering News Record.

WANTED CIVIL engineer experienced in taking off quantities, preparing estimated and supervising projects by general contractor in Minnesota. State age, experience, references, salary and when available. Write P-6127, Engineering News-Record.

STRUCTURAL STEEL Designer and Estimator wanted by leading central west fabricator. Permanent position and good opportunity with large well established and growing company. Please state qualifications, past experience and salary requirements. P-6104, Engineering News-Record.

WANTED: ESTIMATOR by General Contracting Firm in Central Pennsylvania. Applicant must be experienced in all types of general building construction. Age between 30 and 40 preferred but not essential. Advise education, experience and salary expected. P-6145, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

PROMINENT MANUFACTURER of centrifugal pumps desires to receive applications from manufacturers' Agencies capable of giving aggressive sales representation to an extensive line, well cataloged and complete (does not include boiler feeders). Open territories are: Bangor, Charlotte, Cincinnati, Columbus, Des Moines, Harrisburg, Helena, Jacksonville, Little Rock, Memphis, Milwaukee, Norfolk, Peoria, Reno, Richmond, Scranton, Springfield, Mass., Toledo, Wichita, Wilmington, Del., Youngstown. Reply to RW-2440, Engineering News-Record.

SALESMAN HEAVY Hardware. Water front construction. State experience, salary desired and references. SW-6141, Engineering News-Record.

(Continued on the opposite page)

WANTED CONSTRUCTION POSITIONS

If you need construction help, get in touch with us. We are sending Employment Information Bulletins to prospective construction men every day. Send us your job requirements and we will list them. No charge to you nor to the applicant if he takes the job. We are an employment information service, not an employment agency. Foreign and Domestic Opportunities, Waseca I, Minn.

(Continued from opposite page)

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service, established 1927, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

MASTER MECHANIC, Equipment Supt., Mechanical Operating Engineer, over twenty-five years' experience with erection, repair and maintenance of heavy industrial equipment, power house, pumping stations and marine equipment, etc., available immediately. Go anywhere. PW-2305, Engineering News-Record.

CIVIL ENGINEER PROFESSOR PE & LS. Available June thru September 1950. Primarily interested in highway, building construction, office or field work. Location North Atlantic States. PW-2504, Engineering News-Record.

HIGHWAY ENGINEER, Seventeen years responsible experience in construction and maintenance including earthwork, rigid and flexible pavements, structures and sewers. Graduate civil engineer now employed as senior engineer by municipality. Desire responsible opportunity with consultant, contractor or public road authority. PW-2518, Engineering News-Record.

CONSTRUCTION ACCOUNTANT, 25 yrs. experience all phases building construction. General and cost accounting. Will relocate. PW-2424, Engineering News-Record.

CIVIL ENGINEER—Harvard Graduate Business School, masters degree, June, 1950. Five years field and office contracting experience. Desires position in East requiring above background. 27, single. PW-6055, Engineering News-Record.

MECHANICAL DESIGNER or Plant Engineer—8 yrs. chemical plant layout, process piping, machine design and maintenance, 7 yrs. diversified and supervisory experience. PW-6059, Engineering News-Record.

CONSTRUCTION-EXECUTIVE. Experience. Top executive positions in building construction and building management; in full charge; more than 18 years experience in offices of architects, contractors and engineers; extensive contact and sales experience. Graduate Architectural Engineer. PW-6034, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. 20 yrs. Diversified experience in housing projects, industrial and office bldgs., hospitals, schools, airport and army installations, etc., both foreign and domestic. Presently employed in South America desiring change to domestic projects for at least two years. Full references. PW-6020, Engineering News-Record.

PROFESSIONAL ENGINEER desires administrative position in upper echelon of engineering staff or at executive level in technical advisory status. Registered to practice in several states for industrial, structural, and mechanical problems. Consulting and industrial firm experience in rubber, chemicals, paper and power, design, construction, estimates and reports. High four figure salary, age 47, married, available on arrangement. Employer cognizant of contemplated change. PW-2463, Engineering News-Record.

SUPT. OR Assistant shaft, tunnel, dam, quarry, sewer tunnel, mine, shaft-pit, rock specialist. Speaks Spanish. United States or overseas. Avail. May 1st. PW-6125, Engineering News-Record.

PROFESSOR EXPERIENCED civil engineer and teacher, 36, desires September 1950 associate or full professorship in East. Major field structural engineering. PW-6149, Engineering News-Record.

POSITION WANTED

Cement Finisher—Buildings—Qualified as Foreman—Supt. or Architect Inspector. 20 years experience operator mechanical equipment. Foreign and domestic experience. Willing to travel. No job too big. Reply

PW-6142, Engineering News Record
330 W. 42nd St., New York 18, N. Y.

A COURSE OF INSTRUCTION BY MAIL IN

STRUCTURAL ENGINEERING

Thirty-ninth Year

OUR COURSES HAVE HELPED THOUSANDS
to better positions and to pass State Board Examinations

- Complete Structural Engineering Course.
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- Architectural Engineering.
- Special Course C (State Board Exams).
- Reinforced Concrete Engineering.
- Structural Steel Designing.

Monthly payments permissible. Information sent without obligation. WRITE TODAY

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POSITIONS WANTED

GRAD. C.E., single, age 28, four years diversified experience in bridge design and construction, road construction and large earthwork surveys. Desire foreign or domestic construction work. Will consider county or municipal position. Locate anywhere except eastern U. S. PW-6150, Engineering News-Record.

OFFICE MANAGER, Cost Accountant. Several years experience in all phases of construction office detail. Masters degree in business adm. One year grad. work in Personnel Psychology. Reading and speaking knowledge of French, Spanish. Age 38, married, 1 child. Will travel West, or S.A. for permanent position. PW-2459, Engineering News-Record.

STRUCTURAL CHECKER, 58, steel and reinforced concrete design and shop drawings all types of structures licensed engineer N. Y. $100-week. PW-6097, Engineering News-Record.

GENERAL FOREMAN, Shaft, tunnel, quarry, dam, sewer, close, open. General excavation rock. Speak Spanish. Avail. May 1st. PW-6124, Engineering News-Record.

CIVIL ENGINEER with 25 years experience in design, estimating and construction supervision. Considerable experience in earthwork, roads, streets and bridges. Desires change in employment. Southwest preferred. PW-6026, Engineering News-Record.

ENGINEER—R.C.E., 29, single, 5 yrs. diversified field and office exp. Speak Spanish. Desire position with reputable firm in South or Latin America. PW-6143, Engineering News-Record.

PART TIME WORK WANTED

REGISTERED ENGINEER desires part-time work New York metropolitan area. Experienced on design, specifications, estimates; structural, concrete, heating and air conditioning. PTWW-6082, Engineering News-Record.

LAYOUT, DESIGN, Estimates, Specs—Plants, material handling, buildings, industrial structures. Timer, steel, concrete. licensed P.E. PTWW-6191, Engineering News-Record.

FREE LANCE Engineer, metropolitan area. Steel and reinforced concrete design on buildings, structures and foundations. Shop drawings prepared for contractors and builders. PTWW-6120, Engineering News-Record.

SELLING OPPORTUNITIES WANTED

OWNER'S REPRESENTATIVE. Guarantee that contractor completely comply with owner's requirements. Over 15 years experience, including Construction Superintendent with reputable contractors and major industries. RA-2374, Engineering News-Record.

DESIRE CONSTRUCTION equipment sales position with eventual sales managership in mind. Have plenty experience in the equipment business and as a contractor's supervisor and am still young. Reply SA-6114, Engineering News-Record.

PATENT ATTORNEY

Patent Practice

before U. S. Patent Office. Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommell, Registered Patent Attorneys, Suite 454, 815-15th Street, N. W., Washington 5, D. C.

WANTED

ANYTHING within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

LEARN TO ESTIMATE

Today, more than ever before, you must know how to analyze building costs. If you want to become a successful builder, learn how to prepare a correct estimate in a hurry. Get in on the profitable work now available wherever you turn. Your success is assured if your estimates are right; otherwise you are licked before you start.

The Tamblyn System of Estimating will make a real estimator out of you in a few weeks of your spare time. We are so sure that you will want to learn it, that we will send you our complete home study course for ten days examination absolutely free. If you don't think it is the finest thing you ever saw, just return it and it won't cost you a cent. If you like it and want it, send us $8.75 when 10 days are up and $7.50 per month until $38.75 is paid.

This estimating system is based on forty years of actual construction experience. It has been sold all over the world for more than twenty years. Thousands of estimators and contractors swear by it. Our offer isn't hot air and big talk. We don't give you a diploma or a lapel button, but we do teach you down to earth estimating which will bring you profitable business.

Just send your name and address today, and we will mail you the complete course at once for your approval.

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Used only once, No nails. The following for sale cheap:

1500 pcs. 3"x4"x7' fir
1500 " 4"x4"x10' fir
500 " 4"x6"x10' fir & spruce
1500 " 2"x5"x10' spruce

FS-6107, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

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FOR SALE

Large quantities of 3", 4" and heavy timbers for sale. All stock is square edged and free of nails. We have supplied New York Contractors for over 40 years.

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TOWER AND HOISTING EQUIPMENT

FOR SALE

	PRICE
2—O.K. CLUTCH & MACHINERY—E.D. 120 Double Drum Hoists equipped with 120 H.P Hercules Heavy Duty Engine: Line Speed 200' per minute; single line pull 15,000#; Weight 10,500#. Hoist equipped with electric starter	$2,300.00 ea.
1—AMERICAN HOIST—#72-2G Rebuilt—New Motor (In very good condition)	1,450.00
150—lin. ft. ARCHER DOUBLE WELL TOWER: 3 w/b heavy duty with safety devices and ARCHER concrete apparatus including 44 c.f. concrete bucket and 42 ft. tower hopper with Dumping Chute; and one #531 30 ft. Chicago Boom (without cable). All for	3,000.00

ALL THE ABOVE ITEMS WERE PURCHASED IN EARLY 1948 AND WERE USED ON THE V. A. HOSPITAL PROJECT, BUFFALO, NEW YORK

Prices f.o.b. loaded on trucks at our warehouse, Buffalo, N. Y.

FLEISHER ENGINEERING & CONSTRUCTION CO.

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DEPENDABLE USED MACHINES

Special—International I-4 tractor, 12·00x24 rear tires, with Hough loader, less than six months use.

Universal truck crane
Universal ½ yd. hoe
RD-7 with bulldozer
Waukesha 6MZR engine
Pioneer 4x8 screen
Pioneer duplex road gravel plant
Lippman 18x32 port. hammermill
American 10' vert. elec. sump pump
Silent Hoist Krane Krawler
Jaeger Model 7H single drum hoist
Byers 83 dragline
Robins 3½x6 screen
Robins belt feeder
Osgood 200 backhoe
40' boom for Northwest

For rent,—15 current model Bay City cranes, shovels and backhoes.

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FOR SALE OR RENT

Ransome 34-E Dual Drum Paver

Buda diesel engine, 36'9" boom,

800 gal. auxiliary water tank.

HODGE & HAMMOND, INC.

1162 Grinnell Place

New York, 59, N. Y., Dayton 9-5300

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LORAIN 80 Diesel 1¼ cy shovel & dragline
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LORAIN 35 gas 1 cy shovel
INSLEY 7 tons six wheel truck crane
LORAIN MC3 13 tons ten wheel truck crane
BAY CITY 18T50—17 tons ten wheel truck crane
Caterpillar D-7 hydraulic & cable bulldozers
Int'l TD-18 hyd & cable bulldozers
Int'l TD-14 hyd bulldozers & angledozer
International TD-9 hydraulic bulldozer
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SCRAPERS—LeTourneau & LPC 8/17 cy.

New parts for TD-14; HD-7—Lorain 79

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⅝ yd. Speeder Gas Shovel & Crane • 10-ton Austin 3-wh. Roller • 2-yd. LaPlante Choate Scraper • #4, 4½ & 5 Champ. Jaw Crushers • 1020 Good Rds. Overhead Ec. Jaw Crusher • #19 Kennedy Gearless Gyrator • #4 A.C. Pulverator • 24"x16' Apron Feeder • 16"x25" Flory 2-dr. Elec. Hoist • 20-ton Stiff-Leg Derrick, 125' Boom w/2-dr. Hoist & 100 HP motor.

HAGERSTOWN EQUIPMENT CO.

HAGERSTOWN, MD.

FOR SALE

1—Mancha Little Trammer, 20" to 24" gage.

2—New Batteries with boxes.

1—Herpner Auto Battery Charger.

Above factory-overhauled and guaranteed.

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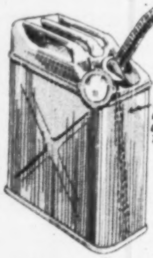
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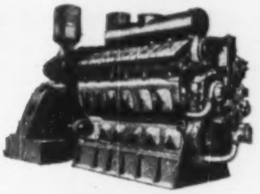

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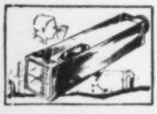

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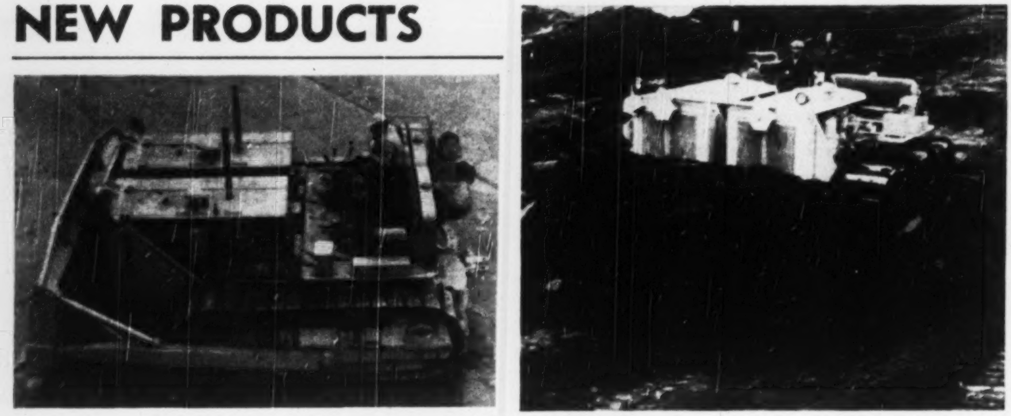
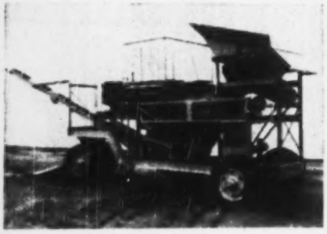


Two D8's Are Combined to Produce a Tractor Rated at 270 Horsepower

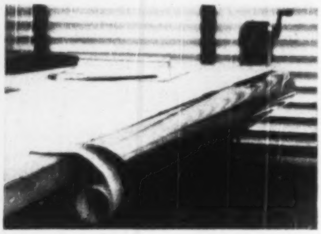
What would you do if you wanted a tractor with a draw-bar-horsepower rating of more than 270, but the largest available unit had a rating in the neighborhood of 130? The Peterson Tractor & Equipment Co. of San Leandro, Calif., decided on the obvious answer—tie two units together and use them as one. The resultant Twin Caterpillar D8 is capable of handling a giant dozer blade 16 ft wide x 5 ft high; can fill a 30-yd scraper without pusher assistance; and can pull (in 4th gear at 3.7 mph) a heavy-duty rooter or ripper through heavy, dried adobe soil with three teeth sunk to full depth.

In operation, one man is in complete control of both engines. He operates controls for both D8's separately except for the master clutch which is controlled simultaneously on both tractors by one lever. Brakes, steering throttles, and gear shift levers are individually operated. Separate engine operation permits reversing one side of the Twin so that the machine swings around in its own tracks, or, when conditions demand full power on a turn, the inside tracks may be geared down to a lower speed under full throttle. Ken Parks, consulting engineer for Peterson, states that no part of the Twin is subjected to any more strain than the maximum occurring in conventional models, and that maintenance is less per unit of work than for two D8's operated separately. Without dozer blade, the Twin D8 weighs 55,000 lb, and measures 13 ft 4 in. in width. For flatcar shipment, the machine is separated at the connecting bolts without major disassembly.



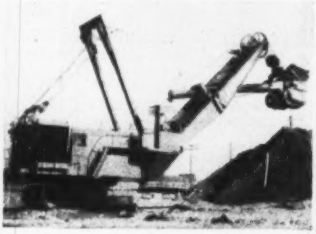
Single-Pass Plant

Crushing and screening plant is made up of standard Cedarapids units and is especially designed as a low-investment machine for moderate-sized crushing jobs. It is recommended for use where material is screened into only one size. The Single Pass plant consists of a reciprocating clutch-controlled feeder and a 6x6-ft charging hopper with adjustable feed gate; a 24-in. x 3-ft single-deck horizontal vibrator screen; jaw crusher with 10x16, 10x20, or 10x24-in. jaw opening; and a 25-ft delivery conveyor. All units are mounted on a steel-wheel or pneumatic-tired truck. A twin jaw crusher is recommended where there is an unusually high percentage of large-size gravel. Simple design is said to result in extremely low operating and maintenance costs.—Iowa Mfg. Co., Cedar Rapids, Iowa.



Aluminum Paper Receiver

Produced by aluminum-extrusion processes, this paper receiver has three applications. (1) With drawings 36x42, or larger, it permits draftsman to bring upper portion of sheet to a convenient working distance from near side of the table. (2) Two units mounted on both right and left-hand ends of the table will facilitate work on extremely long drawings such as highway or railway location or profile drawings. This application requires use of a drafting machine, as it would not be feasible where a T-square or parallel ruler is employed. And (3), as dispenser of roll paper. Full rolls can be stored in the receiver and removed in lengths as required. Free edge of the scroll serves as guide for knife or razor blade.—John J. Kerwin, 4349 Bakman Ave., North Hollywood, Calif.

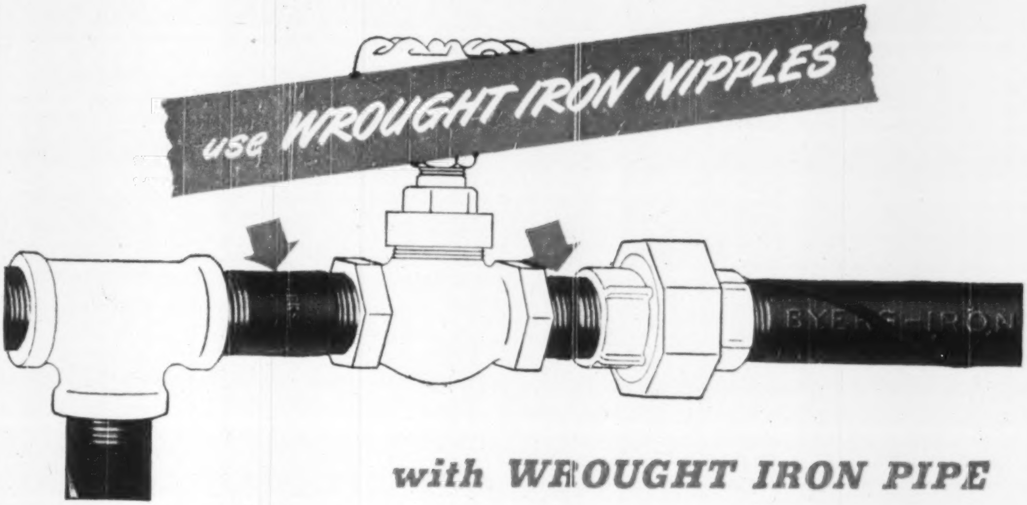


Shovel Has 5½-Yd Capacity

Model 4500 shovel, crane, and dragline has air controls for all operating clutches and brakes, straight diesel power, and crawler drive. It features ease of movement from job to job. On-the-job travel speed is 0.77 mph with bearing pressures as low as 9.6 lb per in. Standard crawlers are 25 ft 9 in. long and 21 ft. wide with choice of 48 or 60-in. pads. Shovel booms are available in lengths of 38 ft 6 in. with 27-ft stick and 5½-yd dipper; 50 ft with 37-ft stick and 5-yd dipper; or 60-ft boom with 45-ft stick and 4½ yd dipper. Optional dragline and clamshell boom lengths vary from 100 to 140 ft. When used as a crane, the 4500 has a rated capacity of 100 tons at a 20-ft radius.—Manitowoc Engineering Works, Manitowoc, Wis.

(Continued on page 78)

Avoid "Weak Links" in your piping systems—



with WROUGHT IRON PIPE

When you specify wrought iron pipe to lick some corrosion problem, assure 100% protection by specifying that the pipe nipples also must be wrought iron. Neglect of this simple precaution will leave weak spots in your lines, and set the stage for maintenance headaches.

METHOD OF SPECIFICATION

Merely stating that the piping "system" is to be black or galvanized wrought iron is not enough; the use of wrought iron nipples should be specifically designated. This may be done by requiring that the wrought iron nipples shall be made of pipe conforming to the requirements of A.S.T.M. Specification A72-45, Federal Specification WW-P-441a, Navy Specification 44P11k, or any accredited proprietary specification.

WIDE RANGE OF SIZES

Byers Wrought Iron nipples, both standard weight and extra strong, are available in a wide range of sizes and lengths, either black or galvanized. They are manufactured from new, tested, full-weight wrought iron pipe in accordance with the standards established in the specifications of leading technical organizations. All nipples are furnished with right-hand threads unless otherwise specified; nipples with right and left-hand threads are also available. Nipples are furnished "close" or to length as specified.

IDENTIFICATION

The word "Byers" and the weight —either "Std." or "X Stg." are machine stamped around the circumference of Byers Wrought Iron nipples. On close nipples, where it is impractical to stamp on the threads, a red band is used. These markings provide quick, positive identification of Byers Wrought Iron nipples, and help to avoid any danger of accidental substitution of non-durable nipples in the line.

IN WELDED SYSTEMS USE WROUGHT IRON WELDING FITTINGS

Wrought iron welding fittings are available in a wide range of types and sizes from leading fitting manufacturers. Just contact your supplier.

Wrought iron nipples are also available from a number of manufacturers. The identification used on such nipples may be learned by consulting the supplier.

INHERENT CORROSION RESISTANCE

The superior resistance of wrought iron nipples comes from the unique composition and structure of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and "detour" corrosive attack, and so discourage pitting. The fibers also anchor the initial protective scale, which shields the underlying metal.

The best guide in applying wrought iron is a knowledge of its character and properties. The complete story is presented in the booklet, "The ABC's of Wrought Iron". Ask for a copy.

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Vee-Jet spray nozzles are said to eliminate streaking and to be as nearly clogproof as it is possible to build them. They form a fan-shaped pattern and provide even distribution of bituminous material. These nozzles are made in three sizes—No. 1 for small-quantity discharges; No. 2 for average application rates; and No. 3 for high-quantity discharge for heavy application rates. The Vee-Jet nozzle is standard equipment on Rosco bituminous distributors with full-circulating spray-bars.—Rosco Mfg. Co., 3118 Snelling Ave., Minneapolis 6, Minn.

Photosensitized Cloth

Conventional negative step used in making cloth reproductions of engineering drawings is eliminated by use of Kodagraph Autopositive cloth. This cloth produces a positive copy directly from a positive original drawing. It may be handled in normal room light and is exposed on conventional blueprint or direct-process machines or a vacuum printing frame. It is available in 30 and 100-ft rolls in 20, 30, 36, and 42-in. widths.—Eastman Kodak Co., Rochester 4, N. Y.

Truck and Shop Hoist

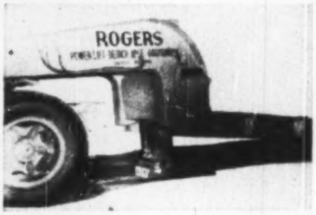
Hydraulically powered hoist will lift a ¾-ton load 77½ in. in 45 sec.; using a short hook-up, it will lift 1 ton 52 in. in 45 sec. A double-action hand-operated hydraulic pump powers the Utility hoist. Hoist can be easily removed from truck.—Unit Mfg. Co., Dept. C-3, 1229 Harmon Place, Minneapolis, Minn.

Liquid-Cooled Compressor

Low first cost, light weight, and simplicity in servicing are features of the Le Roi liquid-cooled 105 Airmaster. This compressor develops 105 cfm at a speed of 1,100 rpm. It weighs 1,990 lb. Features include: One-piece engine-compressor block construction, with common crank shaft, cooling system, and lubrication system; operator has but one control—the starter switch; and replaceable wet-sleeve liners in both engine and compressor.—Le Roi Co., 1700 S. 68th St., Milwaukee 14, Wis.

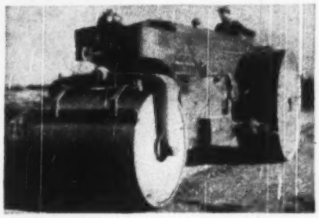
Aluminum Scaffolding

Aluminum-alloy heavy-duty scaffolding can be erected to any size or shape. Features include: Fast erection and dismantling; swivel base plates require no wedging; rapid assembly using Up-Right couplers, locking tubes, and swivel plates; lightweight; high load-carrying ability; and rustproof. The Up-Right Tube-and-Coupler scaffolds will carry loads of over 75 psf with a safety factor of 4.—Up-Right Scaffolds, 1013 Pardee St., Berkeley, Calif.



Detachable Gooseneck

Power-lifted detachable gooseneck, operated by cable-operated ram driven by the tractor winch, facilitates rapid loading and unloading. Special design features permit lowering the trailer deck to clear overhead obstructions; or raising it to clear railroad or other roadbed obstructions. Shorter and lighter ramps permit loading at a lower than conventional angle, while larger diameter tires on the rear of the trailer permit larger legal loads.—Rogers Bros. Corp., 135 Orchard St., Albion, Pa.



Variable-Weight Roller

Machine-finished roll surfaces on these variable-weight 3-wheel rollers permit their use on finishing work, as well as subgrades and stone. The ballast-type rolls have filling and drain plugs installed in the outer heads to facilitate ballasting. On models where wet-sand ballast is recommended, a shovel opening with bolted watertight cover is also provided in the outer head. — The Buffalo-Springfield Roller Co., Springfield, Ohio.

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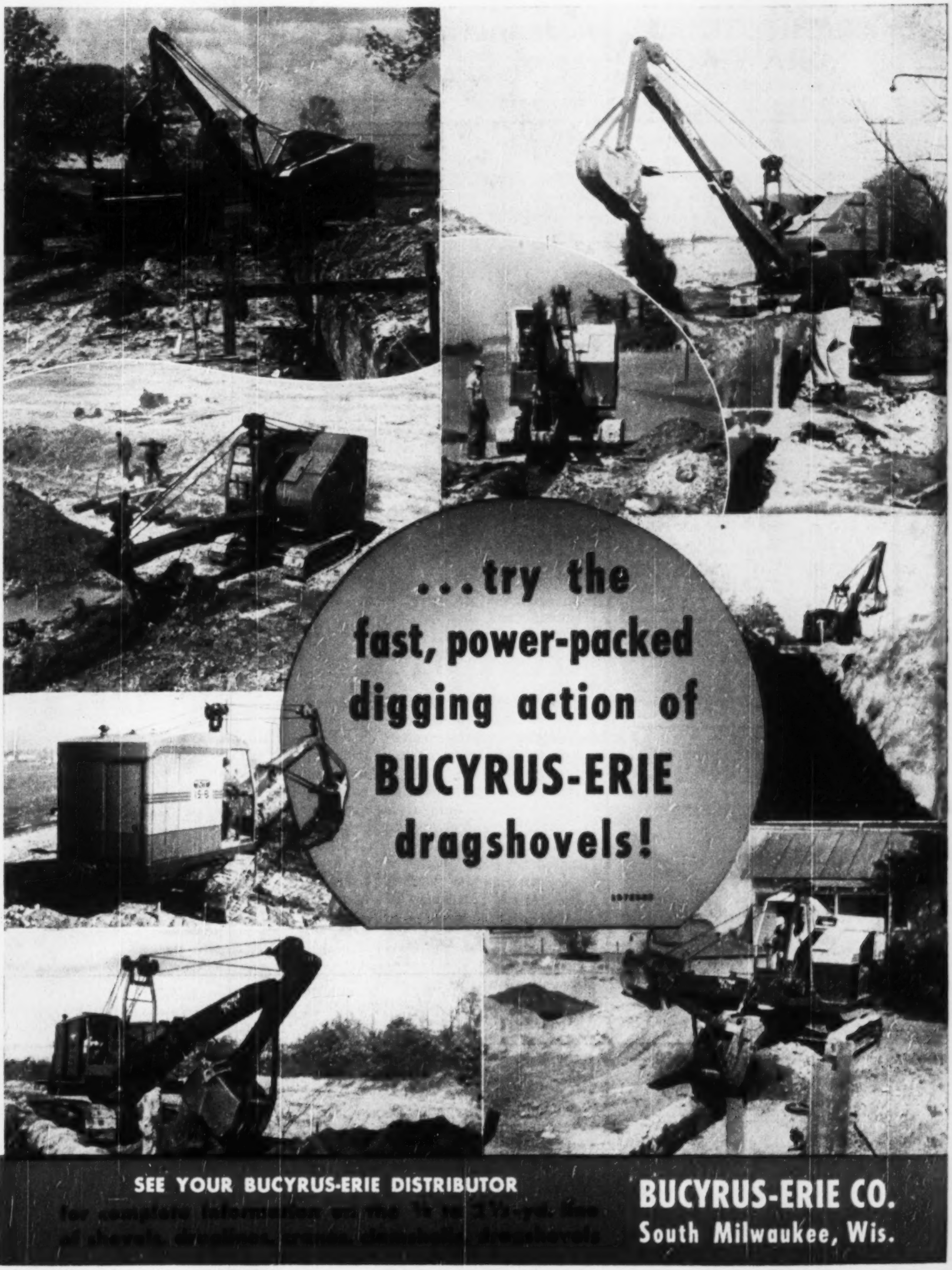

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Slurry-Type Softener and Coagulator—Cold-process slurry-type precipitating water softener and coagulator is described and illustrated in this 16-p catalog. Bulletin W-212-B5 features a large cutaway drawing used to explain the operation of the vortexor. Detailed explanations are provided on the operation and purpose of each individual component. Also included is a blueprint-type flow diagram. The bulletin discusses old and new precipitating systems, and describes the chemical processes involved.—WORTHINGTON PUMP & MACHINERY CORP., HARRISON, N. J.

Concrete Vibrator Catalog—Revised No. 50V concrete-vibrator catalog lists many Wyco improvements, including the optional, replaceable rubber tips for vibrator heads. Brightly illustrated, the catalog contains vital operating data. Machines and parts are listed for convenience and clarity of understanding. Catalog contains complete information on both vibrators and contractors' grinders.—WYZENBEEK & STAFF, INC., 839 W. HUBBARD ST., CHICAGO 22, ILL.

Crushing; Screening Plants—Portable combination 2-unit crushing and screening plants are described in 20-p Bulletin 574A. The booklet covers primary and secondary rock and gravel plants, featuring the portability and versatility of the plants to meet varying conditions for aggregate production. Complete specifications are given, together with a guide to proper selection of equipment. A full cutaway view of two typical plants shows flow of material through the units and explains the exclusive Pioneer feature of split feed, which greatly increases screening capacity.—PIONEER ENGINEERING WORKS, 1515 CENTRAL AVE., MINNEAPOLIS 13, MINN.

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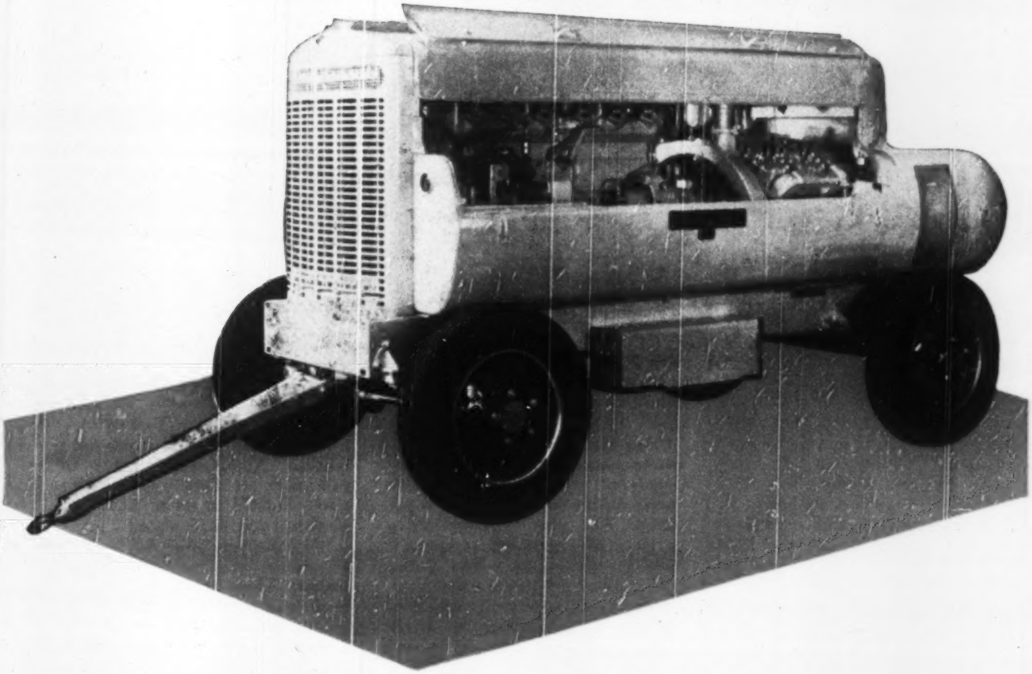

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PERSPECTIVE . . .

If at first you don't succeed—

U. S. finance and engineering know-how are on their way back for a second try at tying together Bolivia's agricultural resources and their market. The cable to bind them is a 312-mi highway.

An earlier try didn't fail, perhaps, but it didn't succeed. It cost over $15,000,000, completed something less than 25 percent of the project. And it laid bare some of the problems that will face the next contractor to tackle the descent from the Andes to the inland plain.

This second try arises from a $16,000,000 credit authorized last fall by the Export-Import Bank (ENR Nov. 24, 1949, p 48). More recently, the Bolivian Development Corporation contracted with Knappen, Tippetts, Abbett, New York consulting engineers, to handle engineering control and supervision on the job. And recently, KTA invited a number of U. S. contractors to submit bids on the construction by April 5. There'll only be one contract let—on a cost-plus-lump-sum-fee basis, with premium and penalty clauses—and the job is to be complete in three years. It's estimated that completion will cost $24,000,000.

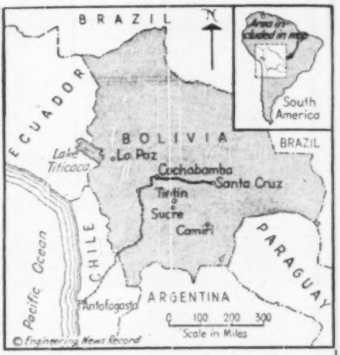
- **Why it's important**—The road gets rave notices from its Bolivian proponents, from the American Road Builders' Association and from experts of the old Public Roads Administration, who established the location and designed the structures for it (ENR Oct. 3, 1946, vol p 429). The reason is pretty simple: It would connect the altiplano, a central plateau on which more than two-thirds of Bolivia's population lives and mines, with the lowlands east of the Andes. The upland population can't feed itself (indeed, the nation can't now) because the altitude—13,000 to 15,000 ft—isn't conducive to agriculture. The eastern lowlands are agriculturally lush. But there's no economic way now to get eastern produce to the central altiplano dwellers. As a consequence, eastern agriculture is relatively undeveloped, along with the oil and other minerals to be found there. It's too expensive and too steep to tie the two areas together by rail, but an all-weather road would let Bolivians feed Bolivians, stabilizing the economy, conserving foreign exchange which now goes for food imports, and allowing nonagricultural development also in a 375,000 sq mi area.

- **The first attempt**—Back in 1944, the Bolivian Development Corp. contracted with the McGraw-Warren Company, a joint venture by F. H. McGraw Co., of Hartford, and Warren Brothers Co., of Cambridge, Mass., to build 250 miles of the road. Financing was $10,000,000 of Ex-Im Bank funds and $5,823,000 of Bolivian funds. Nobody's entirely happy about that job, whatever the reasons. It was a time when machinery was hard to come by and there wasn't enough. Such as there was arrived at the job minus carburetors, batteries, starting motors, headlights, grease cups—just about everything which could readily be stripped off by pilferers. The story runs that when a piece of equipment stopped, it went to the deadline and stayed there, didn't get to the repair shop. Native labor, apparently, wasn't to be handled successfully by U. S. foremen. There were strikes and two revolutions. By the end of 1947, there was no money, and the contract was cancelled.

Since then, Bolivia has done some work with its own people, but the job is only one-quarter done.

The necessity for financing—which was available only from the once-burned Ex-Im Bank—brought U. S. engineers back into the picture. Ex-Im was willing to lend two-thirds of the completion cost for a second try, but it wants no part of a second failure. As a result, it insisted that the project be supervised by a U. S. firm (as well as built by one). Knappen Tippetts Abbett were selected to function as consulting and supervising engineers in authoritative control of all operations. They will perform all engineering services required by the exigencies of the project and will supervise the contractor's execution of the work.

- **What's been done**—The contractor who gets the job will find the road finished for 28 mi east from Cochabamba and 22 mi west from Santa Cruz. He'll find also grading operations practically complete for 68 mi beyond the end of pavement east of Cochabamba and 13 mi beyond the end of pavement west of Santa Cruz. He'll find 13,361,000 cu yd of earth to move and seven bridges to build, none of them major structures by U. S. standards. One, the longest at 285 ft, has been finished. Abutments and piers of two more are done and awaiting steel. There'll be up to 32,333 cu yd of masonry to be placed.

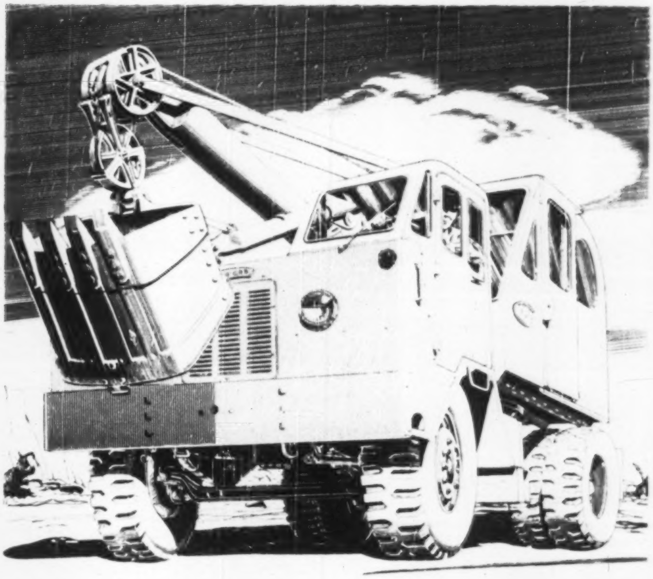


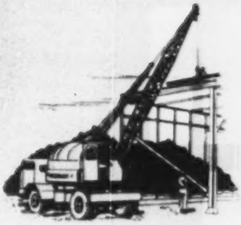
This work will have to be done in country that isn't the world's easiest. There are only 77 mi of level land on the route, the road on some of them already complete or well along. Leaving Cochabamba at 8,200 ft, the road clears a pass at 12,000 ft before it descends to Santa Cruz at 1,500 ft.

The road is to be 26.24 ft wide between outer edges of the drains, with a roadbed 22.9 ft wide and a paved surface of 16.4 ft.

The contractor who takes over will find a lot of equipment on hand—and a lot of repair work to do on it. One estimate—by engineer Jorge Lopez Videla, who's president of Bolivian Development Corp. and one of its most enthusiastic boosters—is that there'll be a $650,000 tab to be picked up for equipment repair alone, with another $1,200,000 worth of new equipment to be bought.

Associated with Videla in promoting the highway have been BDC's U. S. representative, German G. Rovira S., and the company's general manager, Carlos Dorado,—as well as the Bolivian ambassador, Sr. Don Ricardo Martinez Vargas. Gerald T. McCarthy is the Knappen, Tippetts, Abbett partner in charge. Associated with KTA for the job will be Col. M. E. Gilmore, formerly commissioner of the Public Works Administration and later head of the transportation division, Office of Inter American Affairs, a veteran in Latin America.





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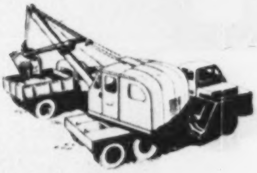

Model TMDT-16
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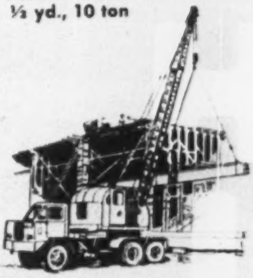
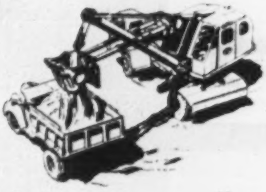


Model TLDT-20
12 ton



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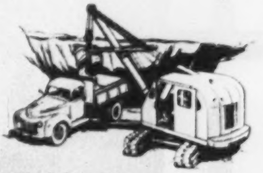

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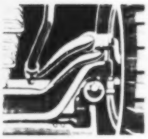

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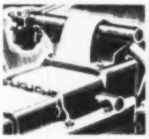

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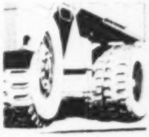

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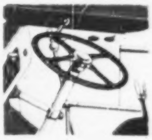

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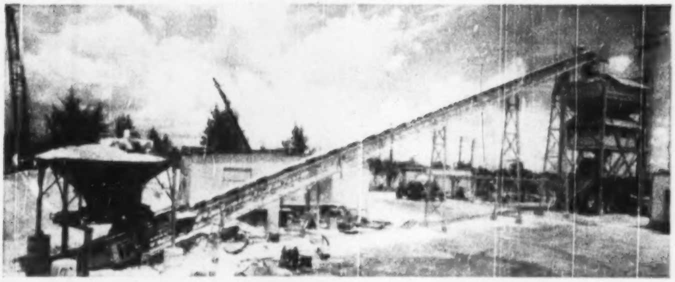

Over the years, the advantages of Timken® tapered roller bearings for conveyor belt idlers have been proved time and time again. Almost every heavy duty conveyor has relied on Timken bearings for long life and dependable, low-cost operation. This Atlas conveyor installation is only one of the thousands all over the country that roll on Timken bearing equipped idlers.

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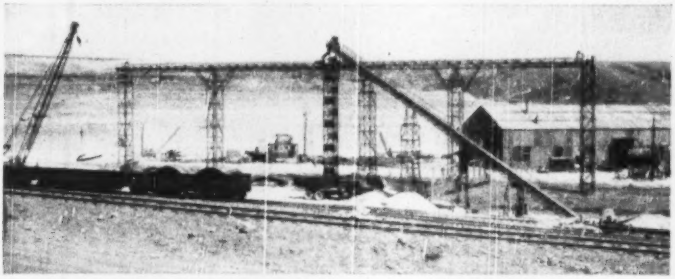

Recent conveyor job using Timken-equipped idlers is this Pioneer conveyor used in the Fort Randall Dam and Reservoir Project at Pickstown, South Dakota. There are 1315 feet of conveyor, 260 idlers, and 1560 Timken bearings. The installation was made in 1949. Timken bearings prevent breakdowns on the job. Keep lubricant in—dirt and moisture out. Provide maximum capacity for radial and thrust loads.

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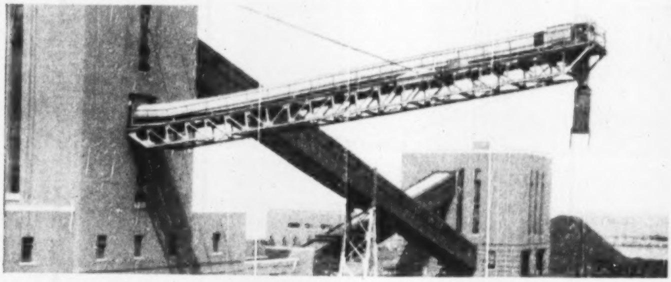

And here's another new one that's Timken-equipped—a Stephens-Adamson belt conveyor in a large eastern central power station. Today, as well as for the past 25 years, Timken bearings are first choice for the tough conveyor jobs. There's no other bearing with so much to offer . . . no other bearing so fully proved! The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

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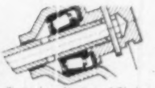

Typical application of Timken bearings for conveyor idlers.

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